





## COMPUTERVIEW on Planning for Automation Conference

"The destruction of jobs in the UK has been caused by a failure to invest in new equipment... we must reject the new pessimism... there is no merit in doing things less efficiently... unemployment can be caused by neglecting technology..."

With thoughts such as these, Energy Minister Tony Benn last week provided an optimistic, forceful start to the Planning for Automation conference at the Polytechnic of the South Bank in London.

Unfortunately, by the end of the day the conference had run into the same fog of fear and confusion which has characterised much of the public debate on the "micro revolution".

The optimistic view of the impact of technology was expressed by Tory MP Ian Lloyd,

## Micro fears blur the way ahead



Tony Benn... "We must reject the new pessimism."

who said the micro was "the largest, finest gift horse we have ever had a chance to look in the mouth." It would stop people from being forced into boring work, and opened up new areas of opportunity for generating new industries and providing a "reinforcement of intellectual power".

And Benn said that information technology could provide a means of capitalising on "our one natural resource that will never be depleted - human knowledge." Computing, he said, could be of benefit to mankind by providing access to the growth of human knowledge.

However, the potential negative aspects of increased automation struck a generally more responsive chord among the audience of almost 150, as it has done in the public media.

The dangers of the "micro" revolution were highlighted by Barrie Sherman, research director

of the white-collar union ASTMS, who said that information technology was unique because it was so all-pervading and would affect a wide range of industries and jobs at the same time. It would cause the elimination of certain jobs and a reduction in the overall demand for workers, particularly unskilled and clerical staff.

His view was backed by speakers from the audience who quoted examples such as the halving of the number of typists employed by Bradford Corporation after the introduction of word processing equipment, to show that people were already losing jobs because of new technology.

Sherman warned that he believed the government and Civil Service were being too complacent about the social impact of automation, as indicated by the Think Tank report.

As the day progressed, the audience divided into two camps, with one side stressing the dangers of high unemployment and the other side the inevitability, in a competitive world, of having to adopt the new technology.

There was some angry heckling of Ian Lloyd for making a "party political speech" which had begun with an emotional attack on the collectivism of the Benn approach, although Benn's personal political speech was received warmly.

And so, stoked by the same simplistic fears and prejudices which the mass media love to ignite, the complex issues surrounding information technology seem to have become inexorably drawn into the same maelstrom of self-interest politics as the country at large.

But as both Benn and Lloyd, from their opposing red and blue corners, pointed out - the problems posed by information technology are only likely to be solved by finding new social and political structures to bring the drive of technology under human control.

Benn said it was all about finding means of spreading and increasing grassroots democratic involvement to take power away from the elite, the

### By Malcolm Peltu

large corporations and bureaucracies.

And Lloyd said, "Feedback suggests that our institutions are not in control, and in finding ways to harness technology there is an opportunity for democracy to take a step forward."

The fears of human hardship currently conjured up by the mere mention of the word micro are understandable and must be faced. But merely restating the dangers will only heighten the fear without providing a solution.

But there is a positive way ahead which does not fudge the issues or pretend the solutions are simple. A way which involves local work, education and community groups in understanding the complex, inter-related "macro" issues while identifying ways of implementing local action plans aimed at using technology to enhance life.

And if we do not start looking for solutions immediately, there will be a whole "lost generation" of the never-employed (see page 3) who will grow up with anger in their hearts and violence in their fists.

### DEC's LSI 11/34

AN LSI version of the top-selling PDP-11/34 mini will be announced by Digital Equipment shortly, say US sources.

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## CTL upset over withdrawal of tender for HSE mini network

DESPITE the fact that tenders for a proposed Health and Safety Executive minicomputer network are expected in "the near future" (CW, January 11), independent UK minicomputer manufacturer Computer Technology has reported that it was a front-runner for the project contract following its tender and discussions with the HSE last year.

"The tender requirement was withdrawn at the very last minute," said John Parnell, UK sales manager for CTL, "and this was after we had put in a lot of work. We were involved in the original bid for the pilot scheme, which I believe Nixdorf won, but before that we had many discussions with the HSE."

CTL's involvement with the HSE pre-dated the actual moment of issue of the tender by over a year, said Parnell, and everything seemed to be going well, even when a direct question was asked during a project meeting.

"We asked the HSE if CTL came up to its specifications," explained Parnell, "and they replied in the affirmative."

But according to an HSE spokesman, CTL only met the requirements in that "it promised the provision of additional

developments and that would be a delay."

Because of this, CTL spokesman, "we decided to take the opportunity to look widely at what equipment was generally available. Now, tenders was completely a 'factory'."

This was denied by CTL who said, "We could only do the job and within the limits. This is also the explanation we have ever had why the tender was withdrawn. At the time, we only sent a telex message telling us the requirement had been cancelled. We are very upset at the way this was done."

CTL tendered for the job, believed to be worth £750,000, with eight medium range 8000 microcomputers.

"The HSE kept on making tensions to the tender," Parnell, "and we were in contact with them. The fact that there were time factors about the tender absolutely had to be as we were ready to do this."

The Central Computing Agency confirmed that tenders did go out last year, but because of a revised plan, "new tenders will be the near future."

## 1984 and all that . . .

THIS week's example of the silly things people say in the world of computers was sent to us by David Davies of New wins 65.

The aim among computer manufacturers today is to tempt equipment for non-professional use and putting the system to work is. Hopefully, the next few years will see an enormous large air-conditioned computer rooms manned by remote young white coats.

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## NEWS IN BRIEF

### Progress in ICL dispute

PROGRESS has been made in the dispute between ICL and managers within the company who are unhappy over the terms of relocation expenses after their move from Bracknell to Slough (CW, January 11), following a meeting of the two sides with ACAS last week.

"The company made a statement during the meeting which said that it was prepared to review, without prejudice and by April 15, the terms of our move from Bracknell," said a management spokesman. The managers, while "unsure what the statement actually means" have agreed to accept the delay.

UNILEVER has spun off the microsystems division of its computer operation and established it as a wholly-owned subsidiary. Known as USCL Microsystems, the new company will be chaired by Len Kaye, with Robert Gilkes, who established the division in April 1977, as general manager.

LAUNCH of the Post Office's PSS public packet network has been put back to the first quarter of 1980, but tariffs are to be announced next month and details of facilities will follow in the spring. The Post Office hopes to offer fully digital leased lines between major cities using the CCITT X21 protocol in 1982 and a full scale digital data network about five years later. This will fill the gap until System X is operating.

A SELF-CONTAINED portable microcomputer system will be introduced in the UK shortly by Computer Ancillaries of Egham. Called the Durango, it is built around the Intel 8085 microprocessor, programmed in BASIC, claimed to be 95% compatible with Data General Basic, costs about £7,500 and comes from a new Californian company also called Durango and formed by Diablo founder and former president George Comstock.

FOLLOWING the drafting of proposed merger-curbing legislation by the US Justice Department (CW, January 18), Senate Judiciary Committee chairman Senator Edward Kennedy has put forward alternative proposals of which the most potentially restrictive is one to bar any company with \$350 million or more in annual sales or \$200 million of assets acquiring a leading company in another industry having more than 15% of a market totalling more than an annual \$250 million.

NEW versions of Hewlett-Packard's HP1000 range are currently under development, according to US reports. They will use devices manufactured in HP's Silicon-on-Sapphire process, which is being increasingly used by the company in its systems. One model at the low end of the range is reportedly called the 211C, while at the top end, the 21HP should exceed the capability of the top-rated 1000F. The new versions could be introduced during the first half of this year.

NER is offering \$125 million for communications equipment manufacturer Contex, whose IBM-compatible front-end processors are marketed in Europe by ITT (CW, January 18).

### Modata

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## Both intelligent and decorative

A TABLETOP computer system, with a starting price of £5,625, has been added by Digital Equipment to its Data-system family of small business computers. Called the Datasystem 150, the tabletop machine is configured around an LSI-11 processor and comes with a 512,000 character floppy disc store and a VT100 video terminal.

Software features of the Datasystem 150 include Commercial Transaction System, CTS-300, which offers sequential, indexed sequential and random file access methods, DEC's high level language, Dilog, and Dicam, Datasystem Interactive Communication Access Method, for interactive communications with an IBM 380 or 370 mainframe.

Datasystem 300 configurations, along with the new 150, now feature modular cabinetry with the special attraction of colourful silk-screen prints for the end panels and matching wall banners (see right).

The semi-abstract designs were created by the American graphic artist Corine Kent, whose many special projects, according to DEC, have included a 150-foot-high rainbow that adorns a natural gas tank at Doncaster, Massachusetts.



## LSI used throughout in the next CDC supercomputer

A SUPERCOMPUTER implemented entirely in LSI technology is the next development planned by Control Data following the introduction of the Cyber 203 supercomputer (CW, January 18). The most important hardware difference between the 203 and the earlier Star 100 supercomputer from Control Data (CW, October 28, 1978) is that the 203 incorporates a conventional - or scalar - computer that is six times faster than the scalar processor used with the Star 100.

The scalar machine is made up of about 2,400 chips, each of which contains 168 emitter-coupled logic gates.

In its next generation of supercomputers, Control Data plans to use these chips in the vector processor, the machine that can execute many millions of floating-point operations a second. In the 203 the vector processor can execute 100 million a second - 100 Megaflops being the term used by Control Data.

The version of Fortran supplied with the Cyber 203 enables the instruction - parallel - vector processor hardware to be called directly. Each of these instructions can cause many thousands of calculations to be carried out, 65,000 being the maximum number.

Application areas for the 203 include weather forecasting, aircraft design, oil reservoir simulation and finite element analysis of complex structures.

## 'Freedom' Bill passes first hurdle

CLEMENT FREUD's Freedom of Information Bill (CW, January 18) received an unexpected second reading in the Commons last Friday, after a four-hour debate, but its chances of becoming law unchanged are still slim owing to the impending General Election and the possibility of many amendments being put forward by the government. If the Bill is not passed by the time the election is announced, it will be completely lost.

Home Secretary Merlyn Rees said the government would not oppose the Bill but would be thinking hard about the kinds of information that should be open to the public. The results of a detailed study on how open government can be increased will be published next month, he said.

Ian Percival, for the Opposition, said that freedom of information should be tackled by a code of practice rather than legislation.

## 'Act quickly to find work for unqualified school-leavers' plea

LACK of investment in education and training and an emphasis on the acquisition rather than the application of knowledge, has led to the creation of a large pool of young people who are unqualified for employment in the high skill economy created by information technology, according to Geoffrey Holland, director of special programmes at the Manpower Services Commission.

Speaking last week at a conference on planning for automation (see page 2), Holland said that there must be action quickly at local level to find ways of involving unqualified school-leavers in work projects.

Holland pointed out that 20% of children leave school without any qualifications, and only about 15% have two or more O levels.

"In planning for the impact of automation we must remember we are at the end of a democ-

graphic 'budge' which will be followed by a famine," Holland stressed.

The peak of the budge will be reached in 1981 with 20,000 school leavers, which will decline to about 600,000 by 1986. "Don't forget that in 1986, when the effects of the micro on the job market could become evident, the average age of the budge will be between 20 and 21," he said.

In the next five years, the attitudes of the school-leavers of today will have been formed, he added, and many of the large number of unqualified young people may never get a job and therefore may drift outside society, without any union to represent their interests. This group could pose major social and political problems.

"There is not on our side and we must find ways of securing access to some form of work for these young people, even if it is 'unpaid' public service work," Holland said.

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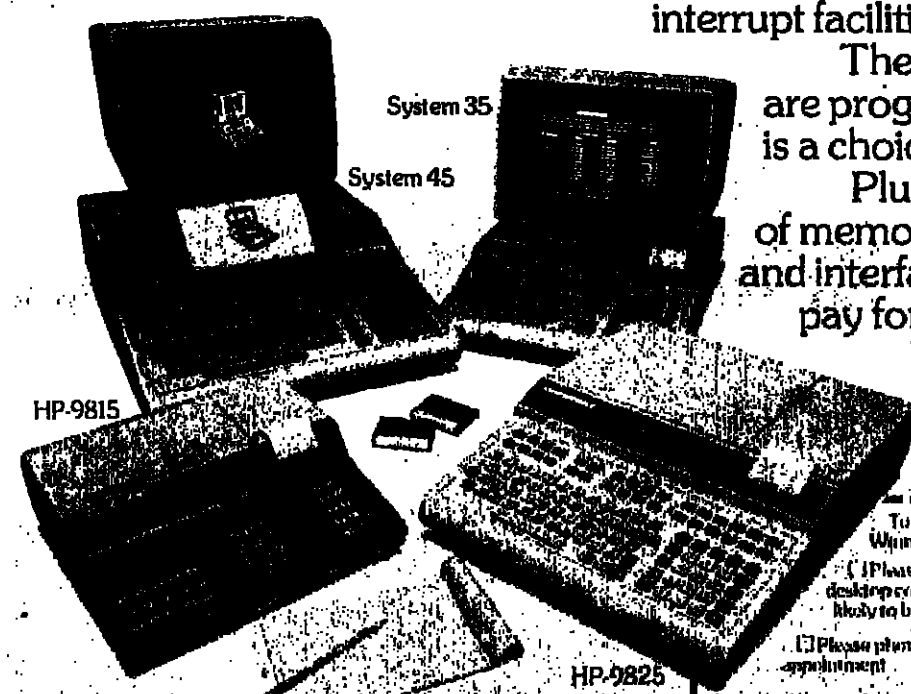
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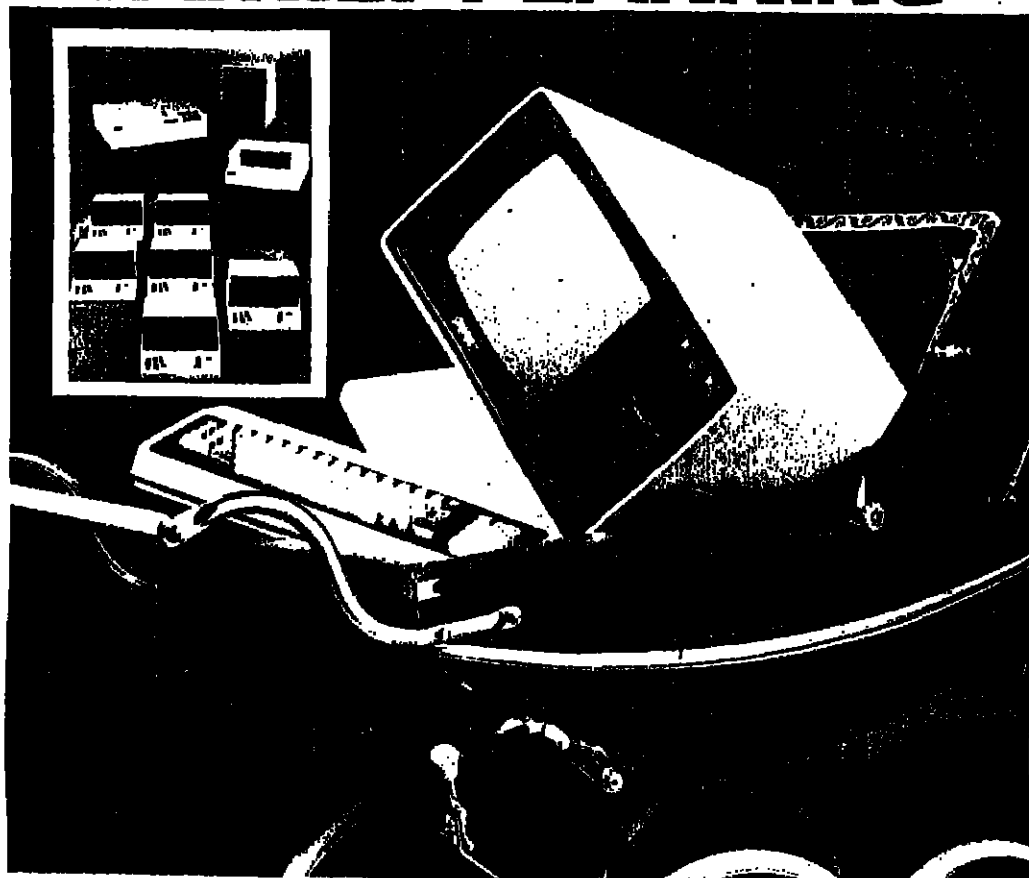
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# Sharp rises in profits and sales at Honeywell and NCR

YEAR END figures from Honeywell and NCR make it clear that IBM was not the only computer company doing booming business in 1978 (CW, January 18).

Honeywell's computer business returned operating profits of \$108 million, up 48% over last year, on turnover up 25% at \$1,294 million, benefiting con-

## NEWS ROUND-UP

siderably from the surge of interest in the Level 6 mini-line. Profits benefited from a tax credit of \$19.9 million arising from CIT-Honeywell Bull, in which Honeywell has a 47%

stake. Tax credit last year was \$10.8 million. Overall, Honeywell recorded net profit up 39% at \$201.4 million on turnover up 22% to \$3,500 million.

At NCR, net profit from continuing operations was up 61% at \$194 million on turnover up 13% at \$2,810 million. During the year, the company increased its investment in research and development to \$138 million, up 20% over the 1977 figure.

LONG AWAITED breakthrough into the building society market for counter terminal systems has been achieved by Philips with a £500,000 order for PTS 6000 equipment for 35 branches of the Midshires Building Society.

COBOL 74 programs can now be run on a Univac UTS 400 intelligent terminal using a compiler that can reside on a Univac 1100 or 90 series mainframe. Compiled programs are loaded down line to the UTS 400. Univac has also introduced a magnetic stripe-card reader for the UTS 400 and a screen management

system that simplifies screen formatting and input validation.

AN ORDER worth £350,000 for 20 System Ten 220 computers has been won by ICL from Barratt Developments Ltd, a major housebuilding firm. Applications software to handle accounting and management reporting on the 220s is being developed for Barratt by MA Systems Ltd of Glasgow. The 220s will be installed at Barratt subsidiaries all over the country.

FAMILY of modular factory terminals called the 200 Series has been introduced by Data Pathing (UK) Ltd, a subsidiary of NCR. The terminals operate online to a processor called the System 15 and each terminal has an interactive display and either a numeric only or an alphanumeric keyboard. Each terminal can also have a badge reader or an 80-column Hollerith card scanner.

ALTHOUGH the Addressograph-Multigraph acquisition of Jacquard is going ahead (CW, December 21, 1978), the big office equipment company's takeover talks with Irvine minimaker Microdata have foundered (CW, November 23).

Addressograph-Multigraph, which has now renamed itself AM International, offered a share exchange which valued Microdata at about \$47 million. The offer was regarded as insufficiently generous by owners of a substantial number of Microdata shares.

MATCHING IBM's memory price cuts on the 3030 series (CW, December 14, 1978), AMDahl has cut the price of main memory for its full line of 470V mainframes by 17% to \$140,000 per two Megabytes, and CPU prices by an average of 6% in the US.

A MICROPROCESSOR-based device that enables IBM 3270 terminals to interface with an X25 packet-switched network has been developed for Chrysler in the US by Associated Computer Consultants of Santa Barbara, California. Chrysler is aiming to make considerable cost savings by linking hundreds of 3271 terminals, located at dealers and depots all over the US, to its Detroit headquarters via the Telenet X25 value-added network, instead of via leased and dial-up lines.

## Downtime by Clive

What we meant to say...

OOPS! A reader letter Reading has written pointing out a bit of a boo-boo in our issue of January 4, last, in an article on IBM Series 1, suggesting that Series 1 was intended as a challenge to the minicomputer market. We said, "This... explains apparent anomalies, such as a poor software support and the lack of quality of counts."

Our reader, Mr. Brown, thinks the idea of giving counts for lack of quality is splendid, and should be promoted throughout the industry!

What we meant, of course, was quantity discounts. Grovel, grovel.

Latest export news is that Abacus computers have been sold to China. Sounds like it to Newcastle, doesn't it?

## PEOPLE AND EVENTS

### Directors named

PLESSEY has announced the appointment of two deputy finance directors. They are Derek Mayes and Robert Nellist. Mayes, who has been company controller since 1972, becomes deputy finance director (commercial), with responsibility for the analysis and review of worldwide performance. Nellist, currently director of accounting at Rolls Royce, will become deputy finance director (accounting) and his responsibilities will include accounting, budgeting, financial planning and taxation.

### DIARY

JANUARY 28  
Visit to Watford-Widharts, Sheffield. RCS Bedfordshire branch. Apply to W. Chinnell, Amphil 403431 ext 40.  
JANUARY 30  
A structured software design method J. P. Winkowicz, RCS Newcastle branch, Barras Bridge Buildings, Newcastle University, Newcastle, 10 00.  
JANUARY 31  
Data production legislation I R H. Sizem, RCS Edinburgh branch, Heriot Watt University, Edinburgh, 12 30.  
FEBRUARY 1  
Microprocessors in automotive applications. RCS Microprocessor specialist group, Polytechnic of Central London, 309 Regent Street, London W1, 14 00.  
The role of information in human affairs. G. G. Savoy Place, London WC2R 0BL, 17 00.  
Presidential address. Prof. Frank Sumner, RCS Merseyside branch, Computer Lab, Liverpool University, Liverpool, 14 00.  
FEBRUARY 5  
Fortran programming for today's databases. P. Clarke, MCS Fortran specialist group, Board Room, 10, 13 Mansfield Street, London W1, 11 00.  
Developments in medical computing. Dr H. Barber, RCS East Anglia branch, Addenbrookes Hospital, Hills Road, Cambridge, 19 00.

Tony Staley has been promoted to the position of branch support manager for the Northern branch of Redifon. He was previously a senior systems analyst with the company. A former programmer with Bolton Computer Services, Mike Cunliffe has joined Redifon as systems analyst for Central Accounts North. Annette Peach, who until recently was senior instructor for the Southern branch, of the company, has become junior systems analyst for the London branch. A former programmer with Woodhall-Duckham, Su Brett has joined Redifon as a junior systems analyst, while Dick Henry has become senior territory manager for the South-East central accounts branch. He was previously employed by British Olivetti as a salesman in the DP division.



Keyes

Roff Keyes and John Yeomans have been appointed to the board of Redifon Computers. Keyes is managing director of Redifon Computers and Yeomans is managing director of Redifon Simulation.

David Youens has been appointed director of personnel for Honeywell Information Systems. He was previously group managing director of Crane Fruehauf, a subsidiary of Fruehauf Corporation of Detroit, where he had responsibility for the company's operations in Iran.

Tom Sperry, previously a support analyst with Forward Computing, one of the Kwikform companies, has joined the technical support team. Previously sales administration manager for Kwikform, Ivor Sheppard has become operations manager with responsibility for both the Forward Computing installation and that of the parent company, Kwikform.

# The poor relations of the industry

OPERATORS are not only the poor relations of the computing fraternity but also of the management and technical grades in general.

Next to laboratory assistants, they are the lowest-paid members of that section of the work-force, according to a survey analysing wages and salaries throughout the country.

The survey — the fifth in a regular six-monthly series — is based on data from 153 small to medium-sized companies and is published by Reward Regional Surveys.

Results of the survey indicate that the national average salary for operators and senior operators is £2,777 and £3,500, respectively. These sums, when we take into account the figures displayed in operations job advertisements in the various computing magazines, compare rather unfavourably with the salaries paid to other members of the computer industry.

On average, the operations

manager gets a salary of £6,300 and the DP manager receives £7,000. It also confirms that programmers and systems analysts receive salaries which are substantially higher than those of

men 11.0% more, and operators' salaries rose by 10.1%. Senior operators did a bit better, though; their average salary went up by 16.5%.

The statistics are also broken down into regional analyses. The best-paid senior operators and operators are in the Manchester area, with £4,270 and £3,338. Their North London counterparts (companies in other parts of the capital did not participate in the survey) get an average salary of £4,015 and £3,321.

The worst-paid senior operators, with £3,047 per annum, are those who work at Staffordshire sites. Similarly, operators in the Wolverhampton and Birmingham areas get £2,600 per year.

A breakdown of the statistics into categories relating to the type and size of machine operated is, quite obviously, beyond the scope of such a survey. Nevertheless, such an analysis would provide some interesting reading.

National Analysis of Salaries and Wages, Reward Regional Surveys Ltd, 1 Mill Street, Stone, Staffs. CV5

## BERNARD ALLEN'S OP SPOT

operations staff; on average, they get £4,249 and £5,350, respectively.

Looking outside the computer industry, we find that the national average salary of a draughtsman is £3,966, while a cashier gets £3,500.

From the autumn of 1977 to that season of last year, the DP manager's salary rose by an average of 20.6%, the operations manager's went up by 15.8%. During that period, systems analysts got 16.3% more, program-

# Broadening the mind with the IDPM

"AS A Civil Servant I have found that not all of the subjects comprising the IDPM examination syllabus are relevant to me."

"Nevertheless, much of it is relevant and I can see how the examinations can do much to improve an operator's position on an 'Op' in addition to helping him perform his duties properly."

So comments Mr. Gregory, a Shift leader from Plymouth who writes to Op Spot in response to an interview, concerning Institute of Data Processing Management membership for operations staff, with Ted Cluff, secretary-general of the IDPM (Op Spot, December 7, 1978).

He mentions that he is a shift leader with "some years' experience" and that he has taken and passed parts one and two of the IDPM examination, and is currently studying for parts three and four.

He views the IDPM examination as a means of helping him meet his responsibilities:

"As I see it, as a shift leader, I have three main responsibilities. Firstly, I have responsibility to my family and myself to improve our situation by increasing my knowledge and efficiency and eventually gaining promotion."

"Secondly, I have a responsibility to the department which employs me. They have the right to expect me to give my best."

"Finally, I have a respon-

sibility to the members of my Shift. Part of my job entails the training of my shift members in the operation of the computer equipment and offering guidance on career development. I cannot possibly do this unless I can continue to extend my knowledge and experience as fully as possible."

Referring directly to the Cluff interview, he adds: "I fully endorse Ted Cluff's view that the IDPM syllabus will help the operators gain a broader appreciation of both computing and the industry in general, and I would recommend this course of action to any operator seeking to improve his situation."

Well, I know many operators who have lots of "O" and "A" levels and could easily find positions in other professions if they so desired. Instead they choose to remain in operations because they like it, and want the value of the department to be recognised. In addition, they want to be consulted when some new hardware or software is installed, and deserve salaries which reflect their value to the industry.

The IDPM wants operations staff to learn more about the computing industry. That's fine by me. But it should also educate the rest of the industry as to the true role and value of operators.

## Meeting in Birmingham

OPERATIONS is the subject for discussion at the next meeting of the Birmingham branch of the British Computer Society to be held on Tuesday, February 6.

The occasion provides an opportunity for operators to go along and discuss their problems, interests and capabilities with other members of the computing fraternity.

The debate will be led by John Haynes, who is operations manager at the University of Birmingham and a founder-member of the BCS Operations Specialist Group.

The meeting should cover many of the aspects of operations, including such matters as recruitment, training, career progression, the computer room environment and many other problems peculiar to operations. John Haynes told me: "In fact I don't mind what operational matters they want to talk about as long as they come along and make themselves known."

The venue is the Priory Hotel in Edgbaston, and the meeting starts at about 8.30 pm.

Operators often complain that nobody listens to their point of view. Well, Op Spot is listening and Bernard Allen would like to hear your opinions and ideas on all matters relating to computer operations. Your letters should be sent to Op Spot, Computer Weekly, Dorset House, 30 Abchurch Lane, London EC4N 3DF. All letters will be carefully welcomed and Bernard Allen will be writing directly on 01-261 8038.

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# Cullinane back-end DBMS on the way?

## Cobol debugging aid added to Roscoe online system

FOLLOWING its implementation of a back-end database on a PDP-11/70 (CW, March 16, 1978), Cullinane is considering producing a database machine which would combine IDMS and a small IBM or IBM-compatible mainframe in a packaged back-end system.

The software which would make such a product possible is at an advanced stage of development, according to the company, and will be released as a software product regardless of whether or not it goes ahead with the database machine.

Called MCS (Multiple Computer Support), the software under development will enable several systems running database applications to funnel all DBMS processing onto a single machine. This has previously been impracticable because of the close coupling between application tasks and IDMS central version routines.

In the new architecture, Cullinane has adopted a packet mode of communication between application programs and IDMS — the same technique it developed for the PDP-11 implementation. This enables tasks to share the DBMS without either threatening the integrity of the database or causing lengthy lock-outs of competing processors.

Much of the redesigning necessary to support the new architecture has already been implemented in IDMS Release 5.0, noted a spokesman, and with the completion of MCS "all the software will be in place".

MCS is to be implemented in three phases. The first phase, MCS will provide the channel-to-channel connections between processors in close proximity. This software will be delivered to first customer test sites in about three months and will run under all versions of IBM's OS/VS.

Subsequently, Cullinane will

implement full telecommunication support with MCS. This will be integrated with the new IDMS-DC teleprocessing monitor (Software File, November 2, 1978), which entered user testing at the beginning of this week.

In its PDP-11 back-end implementation, some 1500 miles separated the minicomputer from the IBM 370 whose database requests it was processing. Although this system linked just two machines, there is no reason why the software should not link multiple application sites to a single central database.

Much of the attraction of taking the next step and producing a packaged database machine must derive from the dramatically improving price/performance characteristics of suitable hardware. Cullinane will be examining not only the imminent IBM E Series but also the wide range of low-cost plug-compatible systems.

No decision has yet been made to enter this market, but a Cullinane subsidiary has been tasked with evaluating its potential. One of the problems already identified is the commitment the company would have to make to maintaining hardware as well as software.

A packaged hardware/software system has, however, a strong appeal and in some areas offers significant technical opportunities. One idea already being explored by the company is that of microcoding parts of IDMS on the chosen machine.

Dedicated database machines have been under discussion for some time, but one of the most intriguing predictions in this area was made last year by Captain Grace Hopper. With collapsing hardware costs and the rising cost of software, she said, the time could be foreseen when purchasers of a complex software system would be given the

hardware on which to run it for nothing.

Back-end database systems in general have also attracted recurrent industry attention. While advantages — such as increased security and integrity — have prompted most DBMS developers to experiment with such systems, a common view is that little commitment will be made in this area until a clear initiative is taken by IBM.

## Principal forum on Fascia package

THE continuing growth in the user base of the fixed asset accounting package Fascia means that RTZ Computer Services for the first time expects over 100 delegates at the annual user group meeting, to be held next month.

The principal forum for discussion on the development of

A COBOL debugging aid is the latest option to be added to ADR's online programming system Roscoe. Called Cobol-Ade, the software aims to increase programmer productivity by providing full diagnostic information from test runs.

Cobol-Ade supervises batch mode program execution, collecting data according to a specification previously given by the programmer. It subsequently presents the data for online browsing.

One of its functions is to translate system information into the Cobol programmer's language. For example, instead of reporting a "SOCT" operation exception, it will report an abend caused by attempting to read a closed file.

It also provides such facilities as a verb-level trace of logic flow; dynamic analysis of PERFORM logic; dynamic display of data in Cobol mode; and runtime statistics such as paragraph execution count.

All abends due to logic errors are trapped and analysed automatically.

The package is likely to be available from the UK by CAP/CPP around March 2 and will cost about £3,000 to £4,000.

Another recent Roscoe enhancement was the introduction of a word processing facility based on ADR's ETC (Extended Text Composer) system, scaled down version of the ETC under CICS, the facility designed to ease the production of business letters, memos and other such documents.

Also introduced was Roscoe/ETC Interface, giving users access to the full ETC system.

PROGRAMMER NOTES HAVE BEEN HELD OUT THIS WEEK DUE TO THE PAPER SHORTAGE. IT WILL BE BACK NEXT WEEK.

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## DEC merges real time system with IAS

IN a step which partially rationalises its operating systems for the PDP-11, Digital Equipment has merged its real time system RSX-11D with the latest release of the all-purpose IAS. With the new software, IAS Version 3.0, users can generate either RSX-11D or IAS from the same source code.

The new release has also enhanced IAS in a number of areas, notably by improving the efficiency of memory management and the heuristic time scheduler.

IAS (Interactive Application System) was originally developed by DEC in the UK, based on the extension of RSX-11D. One significant effect of the new work, which was also performed in the UK, will be to bring together development and maintenance effort on the two systems.

Although RSX-11D users will have to learn a new system

generation procedure, this should pose few problems to experienced users, according to a DEC spokesman. Part of the IAS enhancement had been to simplify the system, he added.

Three systems could now be generated from IAS, he said. A real time only operating system, corresponding to RSX-11D; a multi-user system offering real time facilities together with the heuristic time scheduler; and a full-blown IAS system, supporting concurrent timesharing, batch, and real time tasks.

The name RSX-11D would no longer be officially used.

The most significant IAS enhancement, he said, was the incorporation of memory management directives. These could be regarded as providing a memory-held overlay mechanism and would be considerably faster than the existing disc-held overlay technique, which would continue to be supported.

The other major enhancement, he noted, was the integration of the heuristic time scheduler with the executive. It had previously been a dependent subsystem and its incorporation into the executive would reduce executive level overheads.

The heuristic software provided with IAS is the most sophisticated scheduler supported on the PDP-11 range and works by modifying resource allocation according to resource use in previous time slices.

## Puzzler

DURING tests on a new computer installation, five different voltages are measured two at a time in series. Every possible permutation of two from five is recorded, giving ten separate readings as follows: 94, 98, 104, 91, 85, 87, 89, 103, 92, 89 (these are in no particular order).

What are the five voltages? See page 45 for solution.

## MARTIN BANKS PREVIEWS NEXT WEEK'S MICROSYSTEMS 79

# Showcase for the micro industry

Microsystems 79 will be held at the West Centre Hotel, Lillie Road, London SW6, from January 31 to February 2. Exhibition times are from 9.30am to 6pm each day. The conference starts at 9.15am on the first two days, and 9.30am on day three.

WITH over 50 companies exhibiting at next week's Microsystems 79, the second staging of this successful showcase again promises to be an important focal point for the growing numbers of people interested in the use and application of micro systems. As at last year's show, visitors will come, some armed with cheque book and credit card for an instant purchase, but mainly looking for that vital commodity with any new technological development — information.

For this reason, this year's conference, run in parallel to the exhibition, could prove to be one of the most significant on the subject held in this country.

Aiming primarily at industrial and professional users, and potential users, the first day of the three-day event will contain several case histories.

An application that is becoming something of a minor classic — and also something of an answer to that other "classic", the Swiss watch industry — is the one at British Sugar. Robert Bass, from the company, will lead off the case studies section, discussing in detail how micro-based control systems affected both the running of the sugar processing plant, and the

management of the operation.

The subject of cost, and in particular the cost of software, will be the theme of Martin Lloyd, a consultant with D M England and Partners.

Software is also a problem for the staff that will eventually use the equipment once it is installed in a new application, and can lead to radical changes being made in a company's organisation. Chris Blake, technical director of Trivector Systems, will examine the new skills that will have to be learnt, and there will also be an examination of the effects of a micro-based pro-

duction on production techniques.

Day two is very much for the designer contemplating using microprocessors. Most of the papers will look at various aspects of the chips themselves, covering design problems, interfaces, bubble memories and device architectures. One paper, from Paul O'Grady of Micro Focus, will examine the advantages and disadvantages of using high level languages in the design of a system.

The variety of hardware design routes open will be covered by two papers. The first, from Roger Bennison of Cambridge

consultants, will look at designing systems with single board microcomputers, especially for applications requiring low production volumes. High volume applications are more and more becoming the domain of the single chip microcomputer, and this will be the subject of the paper by Richard Helyer, of CIA Gannymede. In particular, he will look at some of the new architectural trends in single chip devices, such as the on-chip functional I/O capability.

John Muston, of Marconi Avionics, has been examining the architectures of some of the new 16-bit micros appearing on the scene, and will present a paper on these apparently powerful new processors.

Advances in some areas of the technology will also come in for scrutiny, with Eddie Bleasdale talking on the new, sophisticated interface components being developed; and Peter Newman, of Plessey, giving a paper on the promise offered by bubble memory technology.

The final paper of the day will come from Vincent Tseng, of ICL Datasil, on the problem of choosing a, usually expensive, development system.

Day three is more for fun, though it will probably be as serious as the two previous days. It will be a personal computing day. Stewart Stevenson, of the Scottish Computer Society, will set out to answer the question, "How do I start in personal computing?" This will cover such irritating points as what to buy, what not to buy, and how to meet others like yourself.

Once you have a system, how do you put it to work? Addressing himself to this point will be Robin Bradbeer of the North London Polytechnic, who will describe some of the things the Poly has achieved with a variety of hardware and software.

For the real DYer, Alan Clements, of Teeside Polytechnic, will examine some of the considerations of kit design, and some of the technical problems that must be overcome to get to grips with the subject.

Basic has become something of a de facto standard for personal computing software. But some say it will not always remain so. Martin Best, of Liverpool University, will look at the growing interest in Pascal, and its chances of denoting Basic as the leading language.

Semiconductors tend to work for a long time without fault, but they don't last the first time they are used. But for systems built using such devices, the same cannot always be said. Robin Woods of Isher-Woods will consider what to do about it.

Vincent Tseng, of ICL Datasil, returns to the podium to talk on the potential capabilities, and pitfalls, of "store bought" software — the rapid growth in packaged programs.

What might prove to be the sting in the tail of the whole conference comes with the last speaker, Robert Denton of Texas Instruments. He will talk about what the future holds in personal computing.

## Leading companies exhibit

THE exhibition proper at Microsystems 79 will feature many of the leading names from the microcomputer business.

Several new developments in the small systems market are expected to be on show, such as the new Pet floppy disc, from Commodore, and Orange, a new 280 microcomputer system from Cifer Systems that will support a wide range of high level languages running under the CP/M operating system.

In the industrial field, Swedish company Databord/Satcon AB will be showing its 4080 modular microcomputer system. This has over 60 different circuit boards available, and can accommodate a wide variety of CPU chips. Ferranti Computer Systems will be there with the F100, still Europe's only home designed micro, in a variety of configurations.

As the hardware is of little use without software, there will also be several exhibitors from this sector, including Micro Focus with its CISCobol, and CAP Microsoft, with MicroCobol.

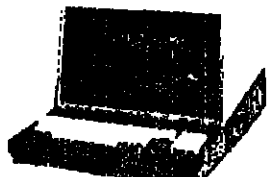
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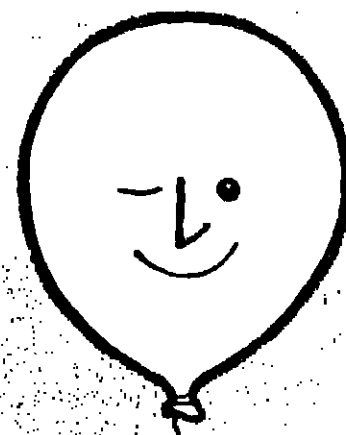


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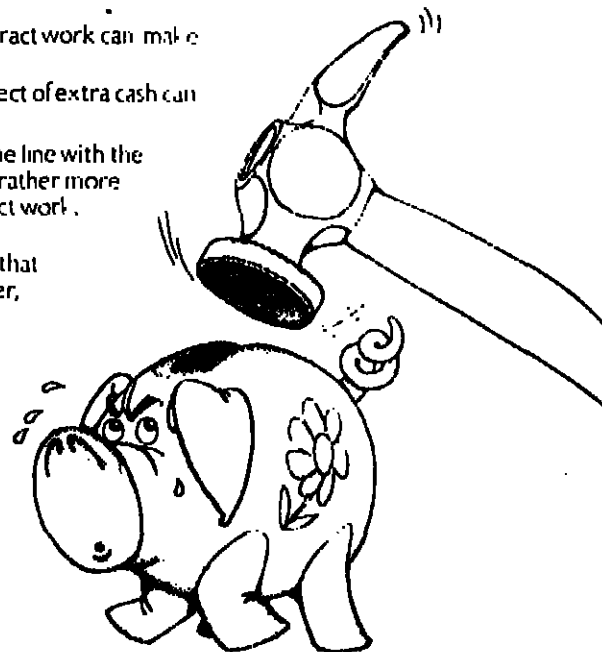
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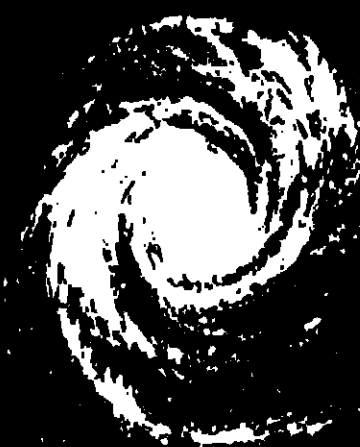
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## Join the superstars

Without a doubt one of the brightest stars in the Computer Industry today is Wang (UK) Limited, their advanced technology and well designed computer and word-processing systems have firmly established them in a well recognised sector.

Recently they announced their virtual storage memory processor, offering the newest range of software aids to increase Programmer productivity dramatically. Storage is virtually unlimited, conversion is easy, all the grown-up languages are available and the 2200 VS has a smooth growth path from a small to medium sized installation with positively no changes to the application software.

The 2200 VS is designed as a business computer and as such provides a data processing function in an office environment. The essence of data processing in this context is to efficiently and speedily store, organise and retrieve data, thus providing multiple users with a timely and accurate response to their requests. With this aim, the 2200 VS, is an office computer that is accessible, modular and industry compatible. The 2200 VS meets these design aims by combining sophisticated but simple to use software, with a wide range of hardware.

Wang (UK) Limited is ten years old, having a large UK user base, selling primarily to the end user, with a growth rate in excess of 50%. The major new release of equipment, designed and engineered with today's needs in mind, represents a simple yet sophisticated computer product range.

This young, vital, computer manufacturer has experienced substantial marketing success and has therefore retained SCR to recruit into the following areas - Sales, Support and Field Service. The people we seek will certainly possess the enthusiasm and energy necessary to achieve the career progression inherent in the small, flexible and dynamic Company environment which is Wang (UK) today.

### Sales Executives - Income package to £15,000 pa plus Car

You are currently successful and possess a proven track record in selling mainframe or minicomputer hardware. Couple this with motivation and determination and you have the qualities necessary to spearhead the launch of the 2200 VS and the consequent attack on the market place. You will be working in a branch structure reporting to the Branch Manager, receiving excellent technical support and working towards realistic quota objectives.

### Technical Support Consultants - c. £7,500 pa plus Car

Essentially, self-motivated Programmer/Analysts possessing a high technical capability coupled with a sound commercial awareness. Your mainframe background should include three years solid experience in high level languages - Cobol/RPG/Basic. You will be expected to be au fait with standard commercial applications.

Demanding opportunities exist in both Pre- and Post-Sales roles, ranging from assistance during Sales meetings and involvement in presenting proposals, to liaison with outside software resources and having project control responsibility to detailed second level technical trouble-shooting.

### Field Service Engineers - c. £6,500 pa plus Car

An absolute minimum of six months experience is required in mainframe or minicomputer hardware and associated peripherals, or possibly a background in the communications industry.

Working in a branch function, Field Engineers will be responsible for the service and support of a Client base within a geographical area.

Following training, you will understand virtually all phases of systems operation and maintenance. You will perform installation of systems, diagnose system problems and repair/replace to component level. You will also be given the opportunity to gain an understanding of basic programming techniques.

All positions involve the ability to cope with customer liaison at Management level and therefore your business attitude and communication skills are equally as important.

Where? Opportunities exist in the London area, Midlands, and Manchester.

For Midlands, Northern and Sales positions contact in the first instance: **Richard Champion on 021-236 3781 weekends or evenings Hagley 4166**

For all positions in the South (except Sales) contact in the first instance: **Dave Scarlett on 01-935 0671 weekends or evenings 01-540 3549**



**Specialist Computer Recruitment Ltd.**  
Birmingham:  
Equity & Law House, 35-37 St. Charles St., Queensway, Birmingham Tel: 021-236 3781  
London:  
3 Mandeville Place, Wigmore Street, London W1M 5LB Tel: 01-935 0671



# "Go INMOS young man"

**WHAT?**  
INMOS is the new semiconductor venture set up to compete in the world market for advanced VLSI devices.  
INMOS is establishing design and marketing activities in the UK and the US, with a prototype facility in the US and the main production centres in the UK.  
INMOS is developing two micron n channel MOS technology which will be used to create the standards for the next generation of memory and microprocessor components.

**WHERE?**  
INMOS is establishing its UK Technology Centre at Bristol. This Centre will have responsibility for developing new products with the primary emphasis on microprocessors.  
At the same time INMOS is establishing a US Technology Centre to develop memory components. The Technology Centres have been chosen with care to provide the best possible environment for the superstars we want, with the attractions of beautiful countryside, city life, good schooling and a wide variety of housing at acceptable prices. There are opportunities at both the UK and the US Technology Centres and interchange between the two Centres will be encouraged.

**WHO?**  
At Bristol, INMOS is recruiting a design team to conceive a new microprocessor philosophy for the standard system component of the 1980's.  
INMOS wants MOS process and design engineers to develop basic technology. Computer architects to create a component that is programmable and connectable, and Software designers to evolve the language and compilers to turn that component into a system. The work involves innovation in design, architecture and software, and INMOS wants people who can make a contribution at all levels, from design superstars and managers to junior staff with potential.

**HOW?**  
We want the best Men and women who can contribute to the leading edge devices which will establish INMOS as a major force in the semiconductor industry.  
We offer the most The opportunity of a new Company, the pleasures of the West Country, the satisfaction of good rewards, the challenge of the future.  
Write NOW for more information and an application form to: Iain M Barron  
INMOS Limited  
Whitehairs,  
Lewins Mead,  
Bristol.

**inmos**

Secretaries  
Demonstrators

Ring Bridget  
or Jenny  
for a change  
486-5644

WHAT ARE YOUR PLANS FOR THIS YEAR?  
If they include making that career change you'd been promising yourself, we are here to help.  
You won't get where you want to be tomorrow by not calling us!

**INSIGHT** for a change  
72-75 Marylebone High Street, London W1M 4AJ Telephone: 01-488 5644

**JBA**

## SOFTWARE DEVELOPMENT/ SUPPORT ON-LINE COMMUNICATIONS NETWORK

Our client, part of a large and diverse British manufacturing group and itself a very substantial company, is currently developing a new range of commercial systems for both their IBM 370/138 and a new on line network of 8 PDP 11/70's.

To provide development and software support for the installation of the new network, the following professional programmers are urgently required:

**Software Specialist salary to £8,000 pa**

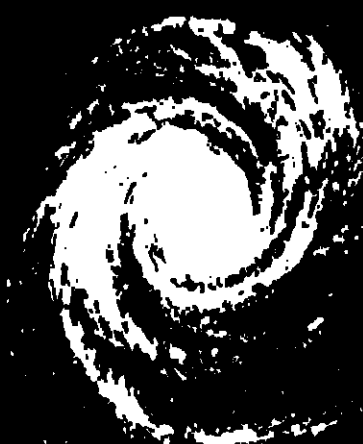
Candidates should possess extensive knowledge of DEC software, comprising a minimum of 3 years in software - preferably on RSX-11M systems. The appointee will be supporting both the network system and the applications programming teams - a wide range of responsibilities.

**Assembler Programmers salary to £7,000 pa**

The successful candidates will be working on the development of the communications network, so preferred applicants will have an RSX-11M/MACRO-11 background. However, applicants with at least 2 years ASSEMBLER experience on other types of hardware will be considered, and if appointed will be given full DEC training.

Contact Margaret Stevens for more details.

**JAMES BAKER ASSOCIATES**  
International Personal Consultants  
18 Maddox Street London W1  
Telephone: 01-491 4478



**WANG**

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**SCR**

Specialist Computer Recruitment Ltd.

Birmingham:

Equity & Law House, 35-37 Gt. Charles St., Queensway, Birmingham Tel: 021-236 3781

London:

3 Mandeville Place, Wigmore Street, London W1M 5LB Tel: 01-935 0671

**SCR** Computer  
Recruitment  
Association



# DOS/VS

## EXPERIENCE . . .

..... then  
advance your career  
in CROYDON

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below.  
QUOTE REF. CW 106.9S.

COMPUTER AND  
PROFESSIONAL  
PERSONNEL  
CONSULTANTS



**CAPP ASSOCIATES**  
LONDON AND MANCHESTER

Computing  
Services  
Association

**01-686 9693**  
A.M.P. HOUSE, DINGWALL RD.  
CROYDON, CR9 2AU

Here are two first class career opportunities for current operations personnel with substantial IBM 370 DOS/VS experience.

A large international company successfully installed last year an IBM 370 in a purpose built data centre in Croydon. Running under DOS/VS and POWER/VS both batch and on-line work is processed.

**OPERATIONS SUPPORT to £5500**

A further member is required for our clients operations support team. The work will be interesting and varied, involving procedures, scheduling, controlling various aspects of the operations area, and close liaison with the Systems and Programming area.

Applications are invited from senior operators or shift leaders with 3 years or more experience of working in an IBM 370 DOS environment.

**JUNIOR SOFTWARE PROGRAMMER to £5500**

For this position, in addition to good DOS/VS experience, you will have an appreciation of COBOL and/or ASSEMBLER programming.

The successful applicant will become involved in the development and maintenance of operating systems and TP monitor, distributive processing based on minis, evaluation of new software and will provide technical support to the development and operations sections.

In addition to a good start salary, benefits include a non-contributory pension and free life insurance.

Would you like to know more, then contact REX SCOONES at Capp Associates CROYDON offices, indicating which of the two above positions is of particular interest.

Please note  
new address  
same phone  
number

**JBA**

## MICROSYSTEMS APPLICATIONS EXECUTIVE

**Midlands**

**£9,000**

We have been retained by a large diverse international engineering organisation, employing 100,000 people worldwide, to recruit a senior microsystems specialist to take responsibility for the development of microprocessor technology in both the products and the manufacturing activities. The prime role is to provide the centre of expertise for each of the divisions in a co-ordinated manner.

Candidates should have a degree, coupled with several years in industry developing CAD/CAM systems, and a proven record in the design of microsystems. Management experience, perhaps as a software/graphics project manager, would be an advantage. Above all, applicants must have the ability and personality to negotiate with senior managers including divisional directors.

This is an outstanding opportunity to influence the use of microprocessors in industry. Salary is negotiable according to experience. Attractive company benefits including relocation where appropriate.

In the first instance please contact:

Jim Baker  
JAMES BAKER ASSOCIATES  
International Personnel Consultants  
16 Maddox Street, London W1  
Telephone 01-491 4478

**JBA**

# GERMANY

JBA can offer a very wide selection of vacancies throughout Europe, ranging from programming and analysis, d.p. instructors, lecturers, to high level consultants. This week we feature some of the permanent and contractual jobs in Germany.

## DOS/VS

**PROGRAMMERS  
PROGRAMMERS/ANALYSTS**

**£ DM60,000  
£ DM65,000**

The client is a highly reputable consultancy organisation in Southern Germany whose combined engineering and computer development experience is almost second to none. Their services range from scientific and research projects to commercial and industrial applications systems.

One of their current projects requires a team of experienced IBM 370 DOS personnel, who must have at least 2 years PL/I programming, together with COBOL and/or DLI. Previous use of decision tables is essential for at least one team member.

The team will ideally commence Feb/March and will continue for not less than 1 year with subsequent assignments available for an extended stay in this wonderful part of Europe. German is desirable but not essential.

**SYSTEMS PROGRAMMERS**

**DM60,000-DM90,000**

Several permanent positions are available in a new systems support team currently being established by this major main computer manufacturer, who are vastly expanding their range of hardware for 1979. A minimum of two years experience is required, together with a thorough knowledge of DOS.

Our client is offering higher than average salaries (in UK terms £16-24k), plus house agent and removal expenses, initial family separation allowance, a minimum of 6 weeks holiday (+ all statutory holidays) and paid time off to attend German lessons. An excellent package.

## OS/MVS

**COMMERCIAL APPLICATIONS  
DEVELOPMENT**

This large computer services company is situated in a superb part of Southern Germany, near one of the oldest and most beautiful towns in Europe. Successful applicants can be assured of a career within the organisation and an excellent, progressive salary package.

**APPLICATIONS PROGRAMMERS**

**Salary: start at DM50,400 rising to DM65,300**

A minimum of three years commercial programming experience, with a sound knowledge of IBM 370 OS COBOL. Experience of BAL would be viewed extremely favourably, as would the ability to speak German although neither of these is mandatory.

**SYSTEMS ANALYSTS**

**Salary: start at DM56,300 rising to DM73,000**

Candidates must have had formal training in Analysis, backed by a period of at least two years in commercial programming. Five years d.p. experience in all is required, so applicants will have had a good deal of exposure to commercial systems and applications. Knowledge of German is more important in these positions.

## .... ALSO ....

**SOFTWARE PROGRAMMER  
(2900 Fortran)**

**DM50,000-DM60,000**

Our client, located near Stuttgart, is seeking a technician to assist in the development of a complex scientific system involving digital image processing techniques.

Applicants must have ICL 2900 Fortran programming experience, a scientific or technical background—including use of data simulators and test drivers—plus the ability to work without supervision. Long term project with lots of technical involvement and experience-building prospects.

**WAREHOUSE AUTOMATION**

**£ DM68,000**

Tremendous opportunity for a specialist in process control systems to head up a small project team designing a complete micro and mini based system to automate a large warehousing and goods storage facility.

This position would initially be offered on a contractual basis, although the chances of subsequent permanent employment are excellent.

Contact: Mike Creamer or Andy Wright

**JAMES BAKER ASSOCIATES**  
International Personnel Consultants  
16 Maddox Street, London W1. Tel: 01-491 4478

**FIELD SUPPORT ENGINEERS**

**DM50,000-DM90,000**

A large number of permanent positions exist in various types of organisations in Southern Germany for mainframe engineers with a sound field service background.

Preference is given to those with either IBM mainframe or plug-compatible h/w experience. In depth knowledge of at least one of the following diagnostic aids would also be extremely useful: MCH, CCH, LOGDATE I, RAS, DSS, OLTER, IVP.

♦♦♦♦♦  
If the prospect of working on the Continent appeals to you, prior consultation and advice from people who know the market place and the aspects of working abroad (in detail) is essential, and we'd like to discuss the situation with you—whatever your experience.  
♦♦♦♦♦

Computer Board For Universities And  
Research Councils

## Joint Network Team Appointment of Head

Recognising that flexible and compatible interconnection arrangements will play an important role in extending access to computing resources and expanding the range of facilities available to computer users in the academic community, the Computer Board and Research Councils are to set up a Joint Network Team. Its main aim will be to prepare, supervise and participate in a coordinated programme for the further development of computer networking among universities and Research Council institutes.

The specialist team is expected to consist of up to six posts and will be located at the Rutherford Laboratory, Chilton, Oxfordshire.

The responsibilities of the Head of the team will include presenting a programme of work to the Computer Board and the Research Councils for financial approval and supervising its execution. He will be called on to make recommendations to the sponsoring bodies on network plans for individual universities and Research Council institutes and to advise on technical and financial aspects of computer networking. An important part of the post will be to establish and maintain collaborative relationships with senior managerial and technical staff in computer centres throughout the academic community.

Applications are now invited from people with an interest in computer networking and with experience of university and Research Council computing. Applicants should have the ability to manage technical projects and a sound basic knowledge of computing and telecommunications technologies. Familiarity with current trends towards networking standards and proposed public packet-switched services would be an advantage.

The appointment will be for a fixed term of three years.

The salary will be in the range £10,746-£12,091 or £10,043-£11,300 depending on the superannuation scheme chosen.

Further details and an application form may be obtained from Jane Griffiths in the Personnel Group, Rutherford Laboratory. Please quote reference VN.760. Closing date for applications 12th February 1979.

Rutherford Laboratory, Chilton, Didcot, Oxfordshire OX11 0QX.  
Tel: Abingdon 21900.

# ata Computer Recruitment

A division of ATA Selection and Management Services, recruitment consultants to industry and Commerce since 1962

## SALES EXECUTIVES £13,000 NATIONWIDE

As one of the most recognised International manufacturers of electronic equipment, with Consumer, Commercial and Communications bases; our client enjoys a reputation envied by many.

Opportunities now exist throughout the UK to join their dramatically successful computer division. With their long term experience they are capable of offering terms of employment unavailable elsewhere. Initial product training is designed to enhance product quality. Excellence of service support ensures that the successful sales executive need never worry about reliability.

The company pay-plan will give the experienced mini-computer or sophisticated business systems sales executive (male/female) a basic salary of c £6,000.

However the less experienced graduate should also give this opportunity serious consideration. Initial guaranteed income levels will reflect your current success.

Quota commission earnings and generous bonuses ensure that the truly determined will achieve first year earnings of £13,000. A quality saloon car, full expenses plus other multinational company benefits complement this desirable package. For a confidential discussion please contact your nearest branch.

LONDON (01) 637 0781 MANCHESTER (061) 632 6856 BIRMINGHAM (021) 643 1994 BRISTOL (0272) 211035 EDINBURGH (031) 226 5381 CRAWLEY (0293) 514071 SOUTHAMPTON (0703) 37555  
230 GL. Portland St. W1N 5HG 86 Cross St. M2 4LA Woolworth Building, 102 New St. B2 4HQ Equity and Law Building 36/38 Baldwin St. B51 1NR Anglia House, 24/26 Frederick St. S01 2JB 23 Cumberland Place S01 2BB

## Software Sales Executive

HOME COUNTIES  
c £12000 + Quality Car

Our client is a highly successful computer services company with a reputation for providing quality application software. Established for over 6 years the company has developed a strong client base and is now set to double turnover in 1979. This has created a superb opportunity to join the mini computer division.

Based in the N.W. Home Counties, the prime function will be to develop sales penetration across a broad spectrum of commerce and industry, backed by a strong technical support and consultancy team. As the chosen software company of 2 leading mini-computer manufacturers — 50% of current business is being operated through leads, a very real advantage in a competitive market.

This is a key appointment which will lead toward a developing career within the company. Therefore we are seeking a highly skilled sales "professional" able to demonstrate a successful track record in the software, mini-computer or associated markets.

Rewards by way of high base salary, guarantees and generous performance bonuses should realise £12,000 in the first year and £15-20,000 in the 2nd year. In addition there is a quality car provided.

Applicants, male or female, should apply in strictest confidence with career details to: M Turner, Director, Gresham Executive Appointments, 1 Harewood Place, Harewood Square, London W1R 9HA. Tel: 01-629 9841/4

**Gresham**  
Executive Appointments

## SENIOR SYSTEMS ANALYST NEW MINICOMPUTER

Initially Germany up to £15,000

OUR CLIENT is a respected and well established international manufacturer of sophisticated data processing systems.

THE POSITION entails development of commercial application systems for a new range of minicomputer, is a key role in this exciting project and offers a major career path to the person appointed who will have the opportunity to return to the UK after two years.

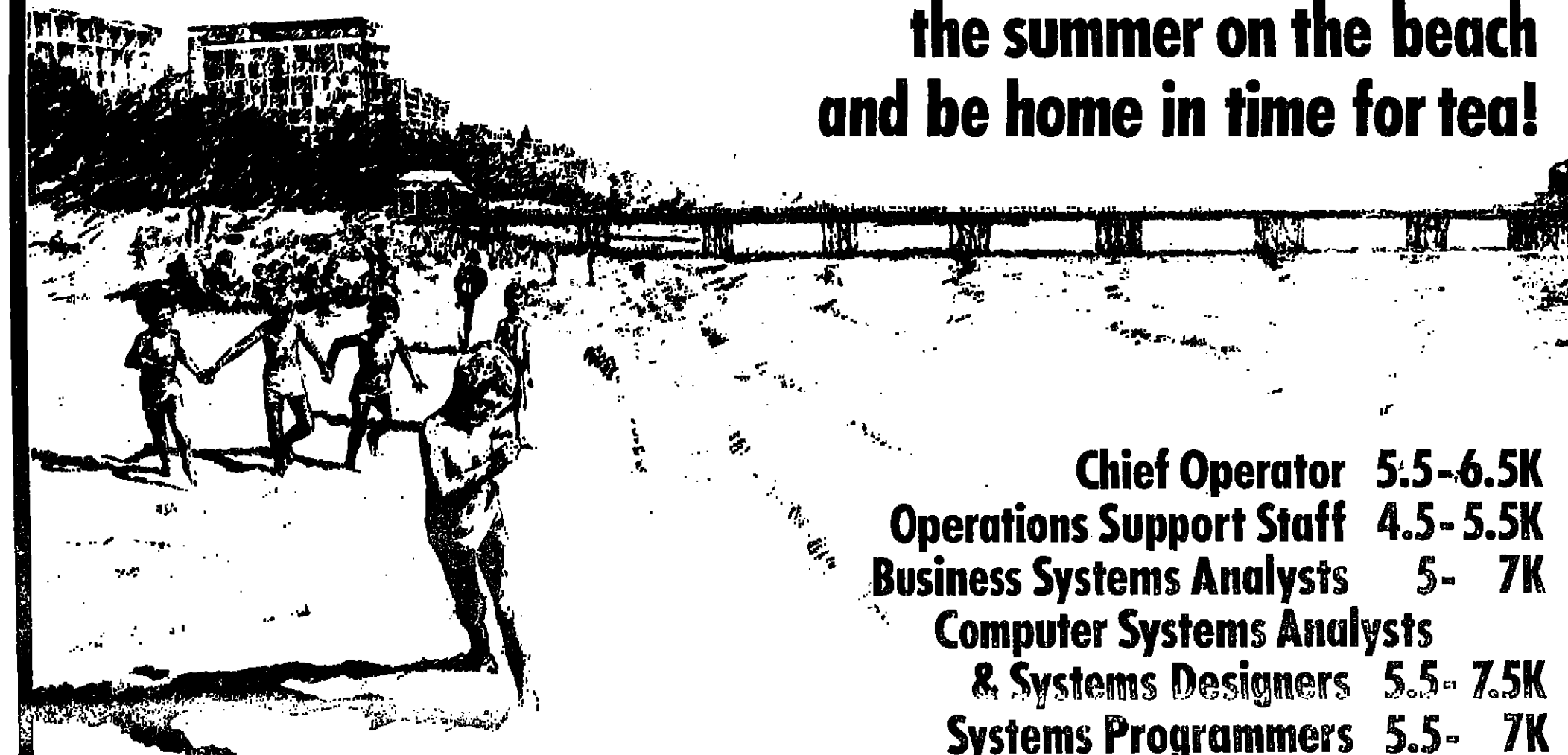
APPLICANTS should have extensive programming and application system design experience, preferably gained with a computer manufacturer, and be capable of controlling significant system development projects. The ability to effectively deal with customers and software houses whilst leading a team is imperative — as is the ability to achieve every individual aspect associated with total system development including feasibility studies, cost estimate plans and implementation. Preference will be given to applicants educated to degree standard and aged 25/35.

Write in confidence quoting CWE 148  
D.H. May — Adviser to the Company

**Peterson Davidson Ltd**  
3 Mandeville Place, Wigmore Street, London W1M 5LB 01-486 4861



Join Abbey Life at Bournemouth...  
and your family can spend  
the summer on the beach  
and be home in time for tea!



Chief Operator 5.5-6.5K  
Operations Support Staff 4.5-5.5K  
Business Systems Analysts 5-7K  
Computer Systems Analysts  
& Systems Designers 5.5-7.5K  
Systems Programmers 5.5-7K  
Programmers 4.5-7K

Abbey Life's planned expansion is ambitious. We have a strategic plan looking into the next 5 years which includes Data Base developments, CICS, DL/1. An IBM 3031 is on order for early 1980. At present we operate a 1 megabyte 370/148 under OS/VS1 on a 3-shift 5-day week basis, and our applications cover a wide range of life assurance, accountancy and information systems. Our prime programming language is COBOL supported by Assembler and Fortran; we use DATAMANAGER and TESTMANAGER for development work.

To continue the achievement of our long-term plans, we put great emphasis on the career development and training of our staff and on the recruitment of

data processing professionals who wish to extend their expertise.

The vacancies result from our expansion plans and are in addition to the staff we recruited from our September recruitment campaign.

Salaries are competitive and there is a substantial package of additional benefits. These include:

Subsidised mortgage scheme,  
Assistance with relocation,  
Non-contributory pension scheme,  
Free Life Assurance,  
Subsidised restaurant,  
Staff discount shop.  
The Company operates flex-time, has first class working conditions in a modern environment, and an active sports and social club.

Interviews will be held in Bournemouth or London. For further details about data processing in Abbey Life and to obtain an application form—

Telephone Barry Greenwood during normal office hours on Bournemouth (0202) 292373, extension 4444.

Outside normal working hours telephone Terry McDowell on Christchurch (02015) 77618 for details of the Operations vacancies, and Barry Greenwood on Bournemouth (0202) 761983 for details of all other vacancies.

Write to Barry Greenwood at Systems Administration Department

**Abbey Life**  
Assurance Company Limited  
80 Holdenhurst Road, Bournemouth BH8 8AL





# MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

## COMPUTER ENGINEERS

**ARE YOU IN THE MOOD FOR A CHANGE?  
THEN MAKE SURE IT'S FOR THE BEST**

We are looking for Computer Engineers in various locations both U.K. and abroad. So whether you are mini, mainframe, or peripheral engineers, trainee or senior level, we will be interested to hear from you.

Listed below are a few of our most urgent vacancies, but we have hundreds more on file. So let us show you what jobs are available and help you find the one that suits you best.

### GENERAL MINI/MAINFRAME

Central London — £10K package  
Outer London — £6 ½ K package + Car  
Midlands — £6 ½ K package + Car  
Berkshire — £9 ½ K package + Car

Contact Peter Gorton or Alan Slater today!

### IBM 370 SERIES

International — £13K package + Car  
London — £14K package + Car  
Manchester — £13K package + Car  
Bristol — £10K package + Car

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

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telephone 01-637 9611

## ANALYST/PROGS £5-£15K

LONDON/BIRMINGHAM/BRISTOL/MANCHESTER and EUROPE

We have been retained by a manufacturer of mainframe and mini computers to recruit staff on a nationwide basis for both senior and junior positions in the following areas:

Applications and software development, database and communications, sales and marketing support, in house design of computer suite.

The big company benefits include high basic salary, incentive bonus, car where applicable.

NO MATTER WHAT YOUR EXPERIENCE, NO MATTER WHERE YOU LIVE, WE WANT TO TALK TO YOU.

For further details contact Tony McGrath on 01-637 9611

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

## COME IN PL1

to £6K + benefits  
TO INCREASE YOUR MINI 'NOUS'

A major British manufacturer using large IBM mainframes is seeking PL1 Programmers with a good degree for their Head Office in North West Kent.

Opportunities exist to work on many varied systems or transfer to working on minis in this go-ahead, computer-oriented company.

They are located near major railway lines to and from London and are easily accessed from Medway, Sheppay, Kent Coast or South London, and are well served by other means of public transport as well as adequate parking.

Basic salary is good and benefits include London Weighting, Bonus/Productivity Scheme, subsidised canteen, contributory pension scheme, and excellent sports and social facilities.

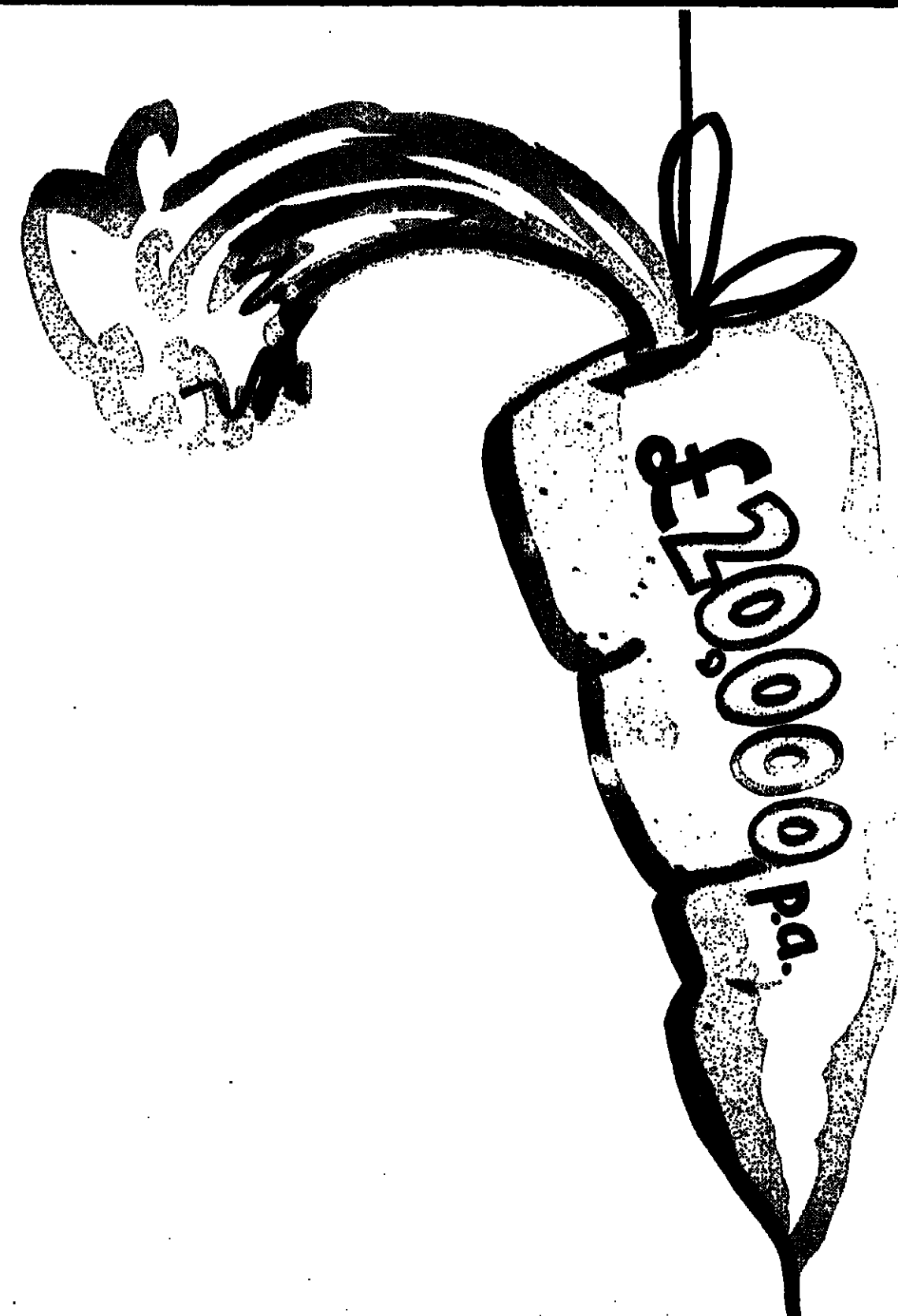
### NORTH WEST KENT

Don't delay — phone Derek Pearson today!

MANAGEMENT & EXECUTIVE SELECTION

# MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611



What is  
**your incentive**  
for '79?

## Any sellers?

- ★ Word Processing is the future (ten times the potential of any other market — read the reports)
- ★ Offices and support throughout the U.K.
- ★ (London, Birmingham, Manchester, Leeds, Reading)

- ★ AES/Wordplex Ltd. is the company (market leaders in screen based word processing)
- ★ Everything going for the salesman (the market, the product, the company, and the rewards)

### NEED WE SAY MORE!

Contact Faye Ogilvie on 01-637 9611

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

*Handwritten note: sell the kit*



Develop your commercial applications skills

# A chance to spread your wings

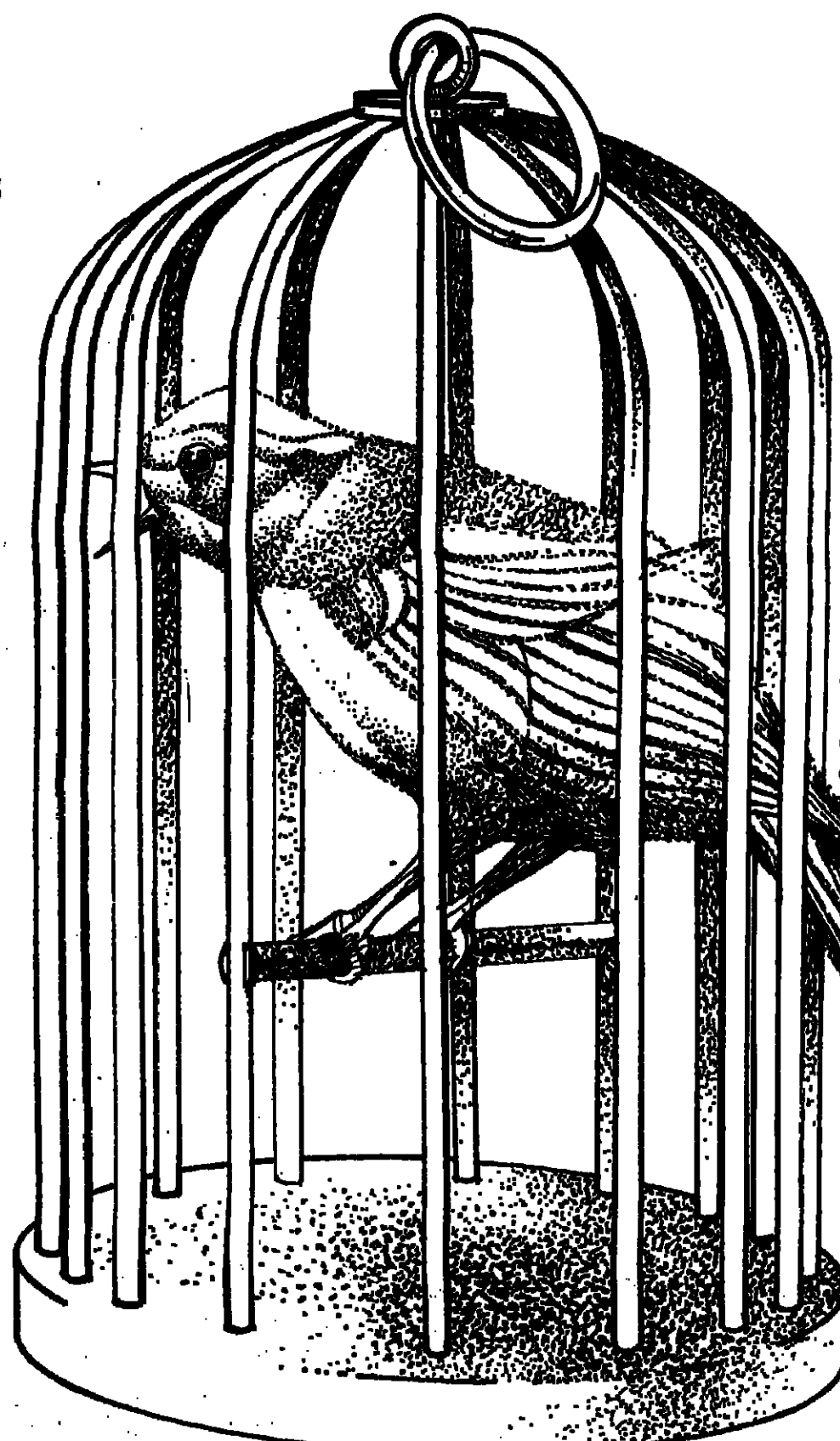
**Systems Analysts  
COBOL Programmers  
Consultant Analysts  
Systems Designers  
Team Leaders  
Project Managers**

1978 was another extremely successful year for ICL, turnover was up by 22% to over £500m, with over half the business coming from overseas.

This kind of success offers a tremendous challenge to the team who provide our internal company systems worldwide – and our development plan, with a £multi-million budget, means that we now have opportunities that will appeal to ambitious systems and programming professionals who expect rapid career progression as well as job satisfaction.

A feature of our development plan is the introduction of systems networking based on an impressive range of hardware from ICL minis, such as System Ten and the 1500 series, through to very large 2900s.

Our project management approach means that systems and user staff are very closely integrated into development teams. This unusual and extremely successful process ensures a high level of commitment which provides technically satisfying systems which really meet the user department's needs. Since ICL operates in 80 countries worldwide, international travel is a possibility as is the chance for longer term overseas assignments. There is also tremendous project variety, covering the range of the Company's activities from



manufacturing to marketing, with the chance to specialise in pure systems development or maintenance and user support.

But perhaps the greatest attraction is the opportunity for career development. Working for a

computer manufacturer means that you could make career moves into functions such as marketing, finance, or customer support, or perhaps consultancy with our subsidiary Dataskil, Europe's leading software house.

**£4000-£8000  
Herts,  
Cheshire,  
London.**

We would like to hear from you if you have experience in some of the following areas:-

- ICL 1900 or 2900 COBOL
- George III, VME/B
- IDMS
- Real-time systems
- Production and Manufacturing systems
- Marketing and Finance systems
- Engineering and Spares systems

The openings are based at Letchworth and Stevenage (Herts), Winsford (Cheshire), West Gorton (Manchester), Kildgrove (Staffs) and Putney (London).

We will be holding interviews over the next two weeks so write now giving brief career details to: George Battersby,

ICL Recruitment Services, 93/99 Upper Richmond Road, London SW15, or if you require further information telephone him on 01-788 7272 Ext. 4179. Please quote reference CW1198.

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## MANAGEMENT & EXECUTIVE SELECTION

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### FIELD SERVICE ENGINEERS

**SALARY PACKAGE:** Generous and Competitive Salary Plus Car

**AREA:** Greater London

**EXPERIENCE:** Practical experience of computer systems in industrial/commercial environments is required.

**OPPORTUNITY:** The U.K. Division of this multi-million dollar American company is small but established, and with sales at an unprecedented high, they expect to double in size within five years. Thus career progression is virtually guaranteed.

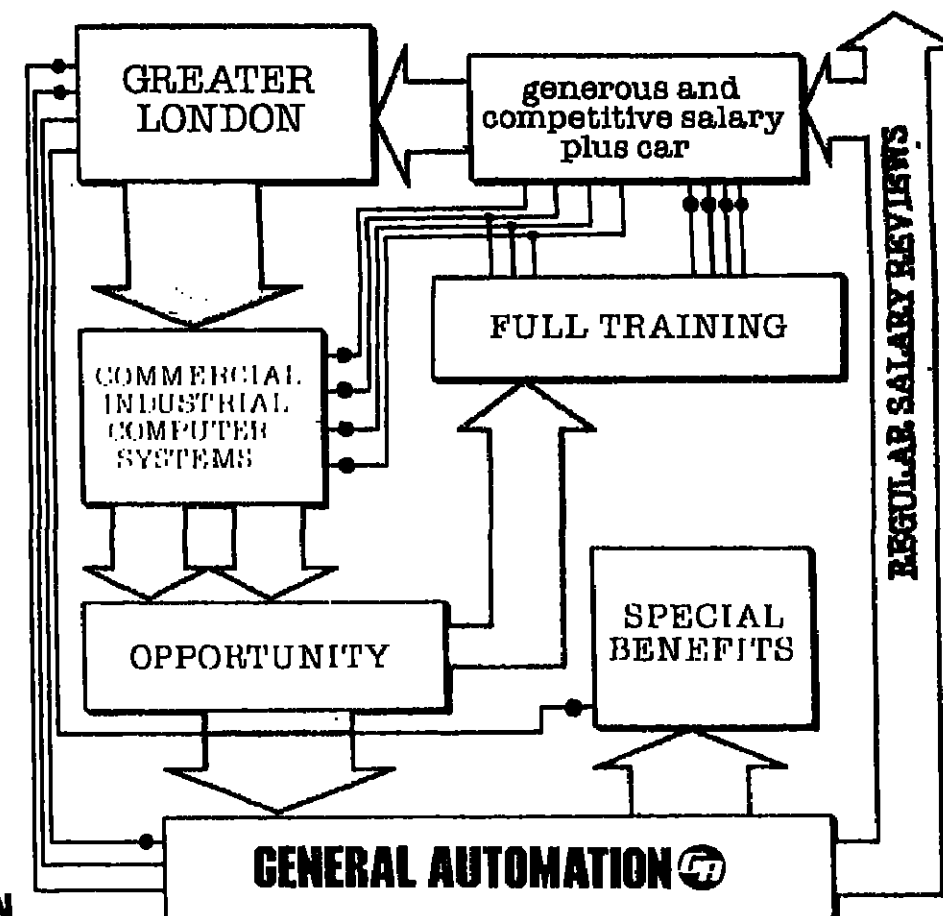
**TRAINING:** Full training will be provided at the company's European Training School on a regular basis.

**FORWARD-LOOKING COMPANY:** The company manufacture powerful mini and micro computers for industrial/commercial use. Their success has resulted in over 18,000 systems installed worldwide. Always at the forefront of technological advances, their activities are constantly highlighted in the International and Trade press.

**SPECIAL BENEFITS:** Free BUPA, Free Life Assurance, Contributory Pension Scheme (5% of salary), 20 days' Holiday p.a.

For positive career advancement, contact Peter Gorton

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA 01-637 9611 **MANAGEMENT & EXECUTIVE SELECTION**



### Get Ahead in '79

**COMPUTER PROJECT MANAGER**  
Location Central London

**£59k**  
Our client is currently developing an extensive range of real time and batch database systems based on a network of PDP-11 minicomputers and an IBM 370/138. The Project Manager will be required to take charge of computer systems development in the Sales and Stock accounting area.

**COMPUTER SUPPLIES MAGNETIC MEDIA** **£28k**

Dynamic sales representatives sought by our client to cover various territories in the U.K. If you are involved in pre-print stationery/Mag Media and seek the opportunity to broaden your horizons then contact us now.

**CUSTOMER SUPPORT/ DEMONSTRATOR**  
Word Processing  
London/S.E.

**to £5.5k + Car**  
Are you experienced in training and demonstrating W.P. or small business systems? Then our client, one of the leaders in this field, can offer you a tremendous opportunity to increase your career and earning potential.

Applicants male or female should apply in strictest confidence to: David Wilkinson, Gresham Executive Appointments, 1 Harewood Place, Hanover Square, London W1R 9HA. Telephone: 01-629 9841/4.

**Gresham Executive Appointments**

**O.E.M. SALES-WORD PROCESSING**  
London U.K.

**£10.5k + Car**

Our client is a major international company marketing a superb range of small business/word processing and office information processing systems.

As part of the company's tremendous growth last year they have created this new position to further develop their market share.

The successful applicant will ideally have an established background in O.E.M./W.P./small business systems hardware sales, be technically competent and capable of rapid career advancement. Full software provided.

**MICROSTAR ★★★★★★**

## Commercial Systems Analyst

**£7,500+ GUILDFORD**

Our client manufactures and sells white goods commercially through 350 outlets, and via major retail chains in the U.K.

The data processing department is a well-staffed unit currently engaged in a major IMS development. All facets of commercial administration are currently computer based.

The advertised position heads up the IMS analytical activity and reports directly to the DPM. It will involve technical/political liaison at national, European and transatlantic levels, especially for database designs.

A degree and five years' commercial analysis experience will be required to qualify for this senior position in a dynamic and well-managed company.

Write, in the first instance, to Robert G. J. Wood, MA, who is advising personally on this appointment at Microstar Limited, Highbury House, 87 Portsmouth Road, Guildford, Surrey GU2 8DL. Telephone Guildford (0483) 33031.

★★★★★★★★★★★★★ **MICROSTAR**

*Handwritten note:* See 11/1/79

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AND PROGRAMMING STAFF — WE ARE THE  
EXPERTS!**

**01-734 0152**

**PROGRAMMER  
HOLLAND  
to DFL 52,000/£13,000**

International insurance company with its European centrally based in Amsterdam is seeking to form a team. With an IBM 370/14 running under OS/VS, the company wishes to see applicants with 3-5 years development in their Technical Services dept. Applicants should have an IBM background, preferably using PL/I. This is a senior position involving project management and quality control of sub-systems in Europe.

- Certain amount of travel involved
- Excellent package — includes RELOCATION
- ENGLISH SPEAKING COUNTRY
- Friendly relaxed atmosphere

**TEAM LEADER  
W. LONDON/BERKS  
to £8,800**

International group of companies with outstanding reputation for efficiency, growth and investment seeks a Team Leader to work on current. A highly motivated professional is needed to undertake a range of real-time and batch processing of data from various sources. Retaining both IBM 370 and PDP 11 systems, the team will be responsible for the development, testing and implementation of new systems. The successful candidate will have experience in project management and quality control of sub-systems in Europe.

- Excellent benefits include non-contributory pension, life assurance and sick leave.
- RELOCATION assistance.

**SYSTEMS SUPPORT ENGINEERS  
EUROPE  
£10,000 + +**

One of the world's largest suppliers of IBM compatible mainframes, marketing and maintaining a wide range of products throughout U.S., Europe, Middle East and Africa seeks LONDON-based systems support engineers to provide technical assistance internationally. The successful candidate will assist with the marketing and technical preparation of proposals and help world-wide clients with planning and implementation. If you have experience of heavy IBM systems general marketing presentation and a desire to travel, then you will be only too pleased to arrange an interview for you!

- Excellent Salary
- A very wide range of valuable benefits
- Chance to work with other professionals of your culture

**PROJECT MANAGER  
CENTRAL LONDON  
£9,000 c**

Our client, a British based banking organisation, is currently extending applications both in U.K. and overseas. A highly motivated professional is needed to undertake a range of real-time and batch processing of data from various sources. Retaining both IBM 370 and PDP 11 systems, the team will be responsible for the development, testing and implementation of new systems. The successful candidate will have experience in project management and quality control of sub-systems in Europe.

- Excellent benefits include non-contributory pension, life assurance and sick leave.
- RELOCATION assistance.

**EDP AUDIT  
LONDON — £8,500 NEG**

Our client, a British based banking organisation, is currently extending applications both in U.K. and overseas. A highly motivated professional is needed to undertake a range of real-time and batch processing of data from various sources. Retaining both IBM 370 and PDP 11 systems, the team will be responsible for the development, testing and implementation of new systems. The successful candidate will have experience in project management and quality control of sub-systems in Europe.

- Excellent benefits include non-contributory pension, life assurance and sick leave.
- RELOCATION assistance.

**SYSTEMS PROGRAMMER  
CITY — £8,500**

Multi National conglomerate company are seeking programmer to undertake full systems responsibility of their IBM 370 hardware. Applicants will have good technical background with at least 2 years ASSEMBLER running under either OS/VS or OS. This is an excellent opportunity to join the organisation at senior level. Can offer:

- Excellent working conditions and prospects
- STLS, LV4, Non-contributory pension
- Security in a growing installation

**TEAM LEADER  
CITY  
to £8,750**

Unique opportunity exists within this multi-national communications conglomerate with an enormous network of PDP mini computer equipment. The company is currently engaged in the development of major international message-switch systems using MACRO/ASSEMBLER, RSX11 and RTL II. Ideal applicants should have proven experience in real-time programming in macro assembler and RSX with message switch knowledge. If you have this experience plus the ability to lead a small team — phone NOW! Company offers:

- Up-to-the-minute technology
- Regular salary reviews and first class promotion prospects
- Above average career structure
- Opportunity for overseas travel if wanted

**SENIOR SYSTEMS ANALYST  
LONDON  
to £8,500**

Excellent opportunity exists for a systems analyst to work within an international company which provides information and real-time systems to the finance and banking industry throughout the world. They are looking for someone with a good background in IBM back ground either in banking or finance plus experience of investment accounting as he/she will play a very important role in major systems of this type. If you want to work in a professional and stimulating environment telephone us now!

- Very friendly atmosphere
- Season ticket loan scheme
- Non-contributory Life Assurance and Pension scheme
- 13.00 per week LV's

**SYSTEMS DESIGNER  
SOUTH ENGLAND  
£8,000 c**

Our client, a British based banking organisation, is currently extending applications both in U.K. and overseas. A highly motivated professional is needed to undertake a range of real-time and batch processing of data from various sources. Retaining both IBM 370 and PDP 11 systems, the team will be responsible for the development, testing and implementation of new systems. The successful candidate will have experience in project management and quality control of sub-systems in Europe.

- Excellent benefits include non-contributory pension, life assurance and sick leave.
- RELOCATION assistance.

**SENIOR ANALYST/  
PROGRAMMERS  
LONDON — £7,500-£8,500**

An exciting opportunity has developed for senior analyst programmers to join major existing and growing company in the West End. They retain IBM 370 and PDP 11 systems, the team will be responsible for the development, testing and implementation of new systems. The successful candidate will have experience in project management and quality control of sub-systems in Europe.

- Excellent benefits include non-contributory pension, life assurance and sick leave.
- RELOCATION assistance.

**SYSTEMS ANALYST  
ESSEX — to £8,000**

Our client, an international manufacturing company, is seeking a systems analyst to work on a variety of major new projects. They retain IBM 370 hardware but will consider any hardware experience. Ideal applicants should have a good background in IBM back ground either in banking or finance plus experience of investment accounting as he/she will play a very important role in major systems of this type. If you want to work in a professional and stimulating environment telephone us now!

- Very friendly atmosphere
- Season ticket loan scheme
- Non-contributory Life Assurance and Pension scheme
- 13.00 per week LV's

**CHIEF PROG./SOFTWARE  
ESSEX — to £8,000**

Our client, a manufacturing company producing well known household brand names offers a considerable scope for person of a high calibre and motivation. They are seeking a chief programmer for general management and technical responsibilities. The successful candidate will have a good background in IBM back ground either in banking or finance plus experience of investment accounting as he/she will play a very important role in major systems of this type. If you want to work in a professional and stimulating environment telephone us now!

- Very friendly atmosphere
- Season ticket loan scheme
- Non-contributory Life Assurance and Pension scheme
- 13.00 per week LV's

**PL/I PROGRAMMER  
N. LONDON  
to £8,000**

Worldwide engineering company engaged in processing of hydro carbon products is currently installing T.P. monitor to their large IBM 370 installation. With expansion being a major part of their plans, they are recruiting a good PL/I programmer with hopefully some exposure to analysis and systems design to become involved in accounting, cost evaluation and project management systems etc. An important factor will be the wide use of CICS as successful candidates will be supervising others in this field — and perhaps some database experience.

- A vast move — very good promotion prospects!
- Internationally famous

**SENIOR PROGRAMMER  
N. LONDON  
£7,000**

Our client, a computer bureau of recognised repute and part of a famous international manufacturing company seeks a senior programmer to develop and work on various new accounting packages. Suitable candidates will have had at least 3 years' programming experience in COBOL on IBM hardware. A super opportunity to follow a good career path as they are awaiting delivery of a 3033 very shortly and a great deal of new development work is planned.

- Flexitime
- Continued development in a well-planned schedule
- Progressive organisation

**SENIOR PROGRAMMER  
N. LONDON  
to £7,000**

Our client, a major American company engaged in the production and marketing of sophisticated electronic equipment, is seeking a programmer who has at least 2 years' programming in RPG II. They retain IBM 370 and PDP 11 systems, the team will be responsible for the development, testing and implementation of new systems. The successful candidate will have experience in project management and quality control of sub-systems in Europe.

- Excellent benefits include non-contributory pension, life assurance and sick leave.
- RELOCATION assistance.

**SENIOR PROGRAMMER  
CITY to £7,000**

As a wholly owned subsidiary of a major international company, we are seeking a senior programmer to develop and work on various new accounting packages. Suitable candidates will have had at least 3 years' programming experience in COBOL on IBM hardware. A super opportunity to follow a good career path as they are awaiting delivery of a 3033 very shortly and a great deal of new development work is planned.

- Flexitime
- Continued development in a well-planned schedule
- Progressive organisation

**SYSTEMS ANALYSTS  
SURREY — to £8,000**

Management can be yours! Have you the ability to make practical contributions to business decisions, communicate effectively at all levels and at least 2 years IBM systems analysis experience? If so, our client, part of a large insurance and financial conglomerate would like to discuss your future. Rapid career progression and lots of client liaison. Co. offers —

- Free life assurance
- Free BUPA
- Sports and social club
- Subsidised staff restaurant and luncheon vouchers
- Regular salary reviews

**SENIOR PROGRAMMER  
CITY — to £7,000**

Due to expansion this multi national bank has an opening for a programmer with at least 4 years' ASSEMBLER experience to work on IBM 370 which runs under OS/VS. This is a very varied position which involves many new and interesting projects related to international finance. If you have the right experience and strong will to succeed then apply NOW! Co. offers —

- Subsidised Mortgage
- Loan Scheme
- Annual Bonus
- Non-contributory pension scheme
- Excellent prospects for promotion

**PROGRAMMERS  
BERKS — £££**

We would like to meet computer professionals on behalf of our clients with at least 3 years' programming experience some of which should be on IBM 370 under OS/VS and/or ASSEMBLER in commercial systems with good communication ability. Candidates will have opportunity of learning database and teleprocessing in an exciting environment. Excellent conditions and friendly atmosphere.

- Fantastic sports and social club
- Season ticket scheme, restaurant, flex hours

**PL/I PROGRAMMER  
CITY — £6,750 c**

Young international company operating world-wide seeks programmers and analysts for both systems development and computer services on IBM 370 under OS/VS and/or ASSEMBLER in commercial systems with good communication ability. Candidates will have opportunity of learning database and teleprocessing in an exciting environment. Excellent conditions and friendly atmosphere.

- Fantastic sports and social club
- Season ticket scheme, restaurant, flex hours

**SYSTEMS ANALYSTS  
N. LONDON  
£7,000 c**

Renowned financial concern based within easy access has opportunities for systems analysts within their Technical Services Division retaining IBM 370 hardware. With sound and proven D.P. experience and a working knowledge of programming (pref. PL/I or ASSEMBLER) the position entails working in areas of systems security and standards and performance monitoring. Good communication ability and successful implementation of medium sized systems is an important factor.

- Subsidised mortgage after statutory period
- Subsidised restaurant
- Non-contributory pension

**ANALYSTS & PROGRAMMERS  
E. LONDON/ESSEX  
to £6,000**

Avoid those strikes and sardine-packed trains and work locally. This company, based approximately 35 miles from central London has openings for 1 programmer and 2 analysts. As a major international organisation their Group Systems services provides a complete range of mechanical support with aid of very large IBM 370 with T.P. monitor and 3780 computers. They would be interested in meeting people with any ASSEMBLER experience to be trained on database and T.P. and candidates with either one year's analysis and strong ASSEMBLER experience OR strong teleprocessing OR sound insurance background.

- Easy access routes for travel
- Excellent working conditions
- Excellent subsidised restaurant

**MINI PROGS  
N. LONDON  
£6,000 c**

WHY TRAVEL to Central London? Major group of companies based close to N. Circular seeks programmers with MINI ASSEMBLER experience to work on real-time information and control systems on PDP 11 equipment which runs under RSX 11 operating system. Small project teams encourage involvement at all stages, this giving design experience and user contact. Company offers:

- Friendly atmosphere
- Excellent promotion prospects
- Discount on Co. products
- Sports and Social Club

**PROGRAMMER  
SOUTH COAST  
£6,000 c**

As part of an international company, we are seeking a programmer to develop and work on various new accounting packages. Suitable candidates will have had at least 3 years' programming experience in COBOL on IBM hardware. A super opportunity to follow a good career path as they are awaiting delivery of a 3033 very shortly and a great deal of new development work is planned.

- Flexitime
- Continued development in a well-planned schedule
- Progressive organisation

**ANALYST PROGRAMMER  
CITY — to £6,500**

With a turnover of £20m our client — a major group of companies has business interests in the UK and overseas, specialising in the provision of a wide range of products and services to various professions. Retaining PDP minis, they seek person with at least 12-18 months' programming of commercial applications on PDP minis. The position involves responsibility for the successful production of programs and documentation on systems assigned to. Opportunities are excellent for advancement to project leader level.

- Modern office
- Mortgage subsidy
- Non-contributory pension scheme
- Fantastic sports and social club

**PROGRAMMERS  
HERTS — to £6,500**

Major financial institution with easy access routes has opportunities for programmers ranging from 18 months' experience for their large IBM 370 computer. Candidates at the lower level should have PL/I under OS — but company will train good COBOL programmers. At the senior level, applicants must have PL/I and ASSEMBLER, preferably with supervisory experience. Co. offers —

- Excellent fringe benefit package including non-contributory pension and mortgage after statutory period
- Good career path

**ANALYST PROGRAMMER  
SURREY — to £6,000**

World leaders in their own field, this organisation has an impressive, varied range of interests including the manufacture of highly sophisticated and technological products. With a large IBM 370 computer with T.P. monitor they seek an experienced COBOL analyst programmer for the successful analysis, design and program development of on-line systems within the project group.

- Fantastic perks include flex hours, holiday
- Concessions, discount on company goods
- Excellent training facilities and promotion prospects

**ICL/IBM  
JNR PROGRAMMER  
LONDON — £5,500 NEG**

Expanding national group currently converting from ICL sys 4 to 280 series IBM or ICL COBOL programmers with minimum 1 year's experience for online machines. Several large projects are currently being developed in an insurance environment but company will consider people with commercial experience.

- Excellent perks and promotion prospects
- Bonus and regular salary reviews

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SUPPORT LIMITED**

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## RESPONSIBILITIES

Having completed appropriate training the successful candidate will join an established team of instructors in our Training Department. The team conducts courses for the Company's field service technicians and in addition are responsible for the design and development of new courses.

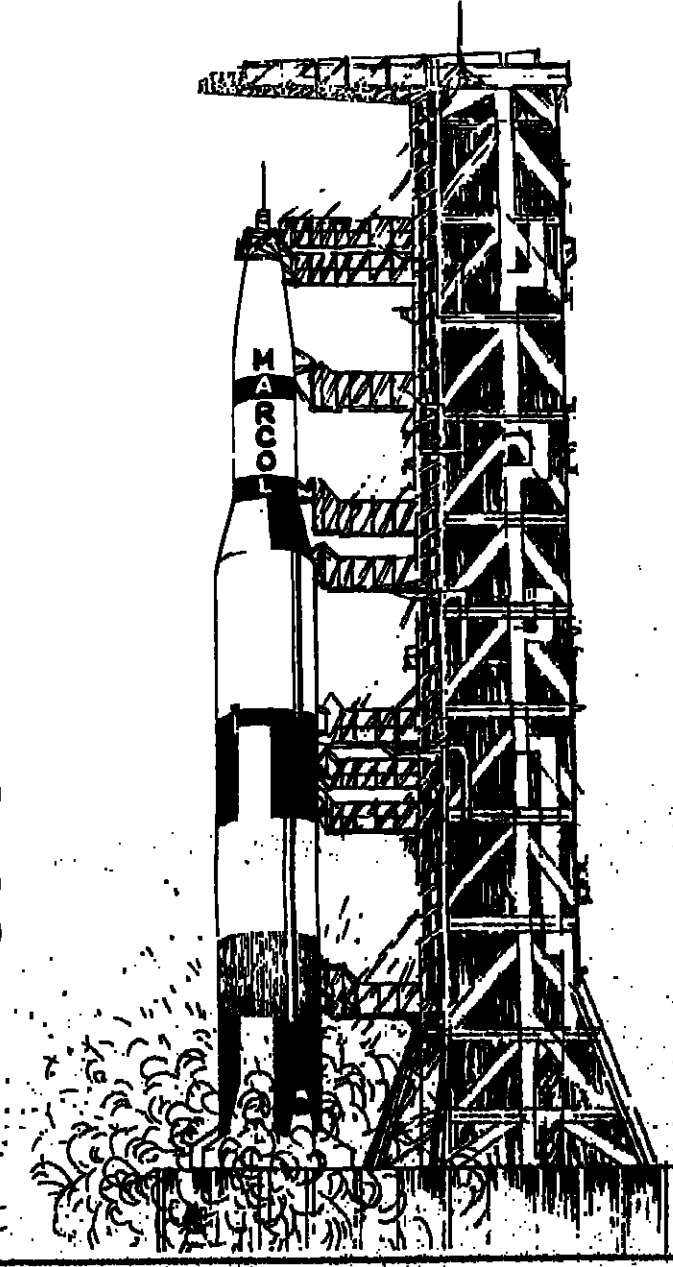
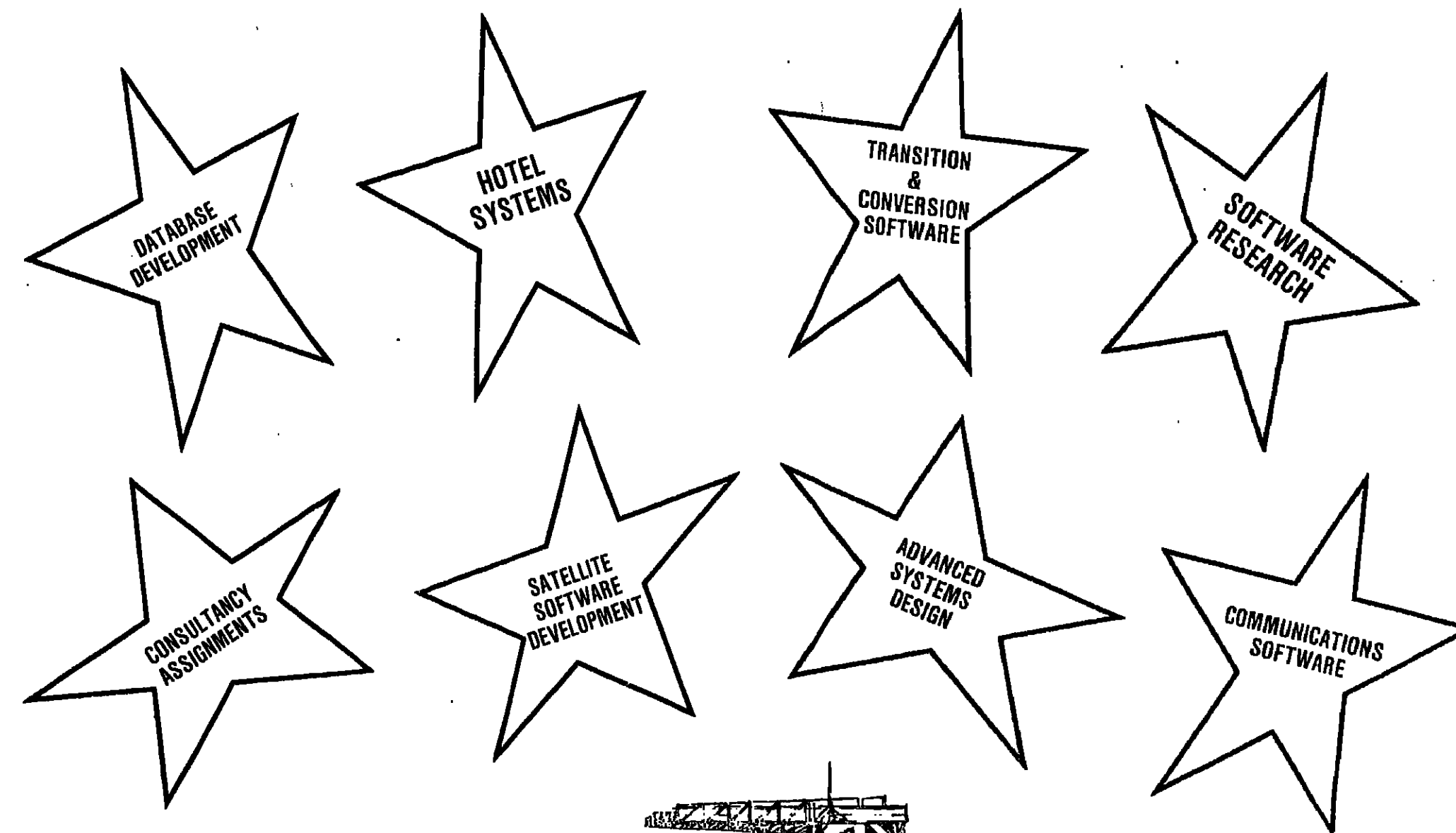
## QUALIFICATIONS:

Candidates should possess a degree in the Electrical/Electronics or Science field. Applications from persons with an equivalent qualification and good experience in the electronics industry would be welcome. Ability in verbal and written communication is essential. Commencing salary will be commensurate with experience. A contributory pension scheme is in operation. Appropriate relocation expenses will be paid.

Please telephone or write for application form to:

THE PERSONNEL MANAGER  
MEASUREX (IRELAND) LIMITED  
INDUSTRIAL ESTATE, WATERFORD, IRELAND  
TELEPHONE: 051-72151

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Analyst/Programmers ..... to £7,500  
Project Leaders ... to £8,500

\*European Assignment allowance is £150 per week.

Why not join one of this country's leading systems organisations and gain the rewards your experience deserves in 1979.

We are expanding our business base, both in the U.K. and Europe\* and require decisive and dedicated people to join new and existing projects.

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## DATA PROCESSING MANAGER (SCOTLAND)

### THE OPPORTUNITY TO DO IT YOUR WAY

Our clients, a major international company, require an energetic manager to establish, develop and control a data processing department at their U.K. operational headquarters near Glasgow.

The company is the world's largest manufacturer of roadside, self propelled aerial work platforms. Their U.K. production plant commenced operations during 1977 and the introduction of a computing facility is now of prime importance.

The successful candidate will be 25-35 years and educated to degree level or equivalent. He/she will have a sound working knowledge of all aspects of computing preferably gained on small IBM, Honeywell, DEC or Univac hardware. Knowledge of Cobol, RPG II or Fortran IV is essential.

Approximately three months will be spent in the U.S.A. becoming familiar with the parent company's systems which run on an IBM system/3 model 15.

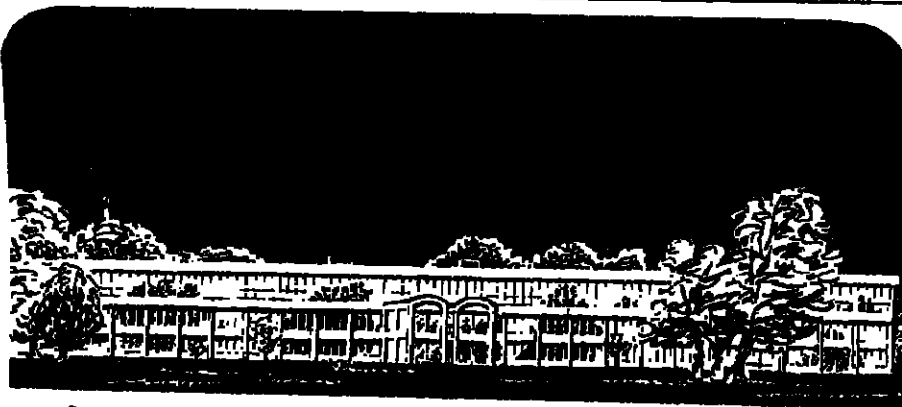
The salary will be in the region of £7,500 p.a. although for a meritorical candidate this figure is negotiable. Normal large company benefits and relocation expenses are included. If you're versatile, determined and prepared to roll up your sleeves to get things done, this is the opportunity you've been looking for.

For further information contact:

H. W. Clark  
Manager  
ATA COMPUTER RECRUITMENT  
Anglie House  
24/26 Frederick Street  
Edinburgh EH2 2JR  
Tel: 031 226 5381 (reverse charges)

Normal business hours: 9.00 a.m.-5.30 p.m.  
Monday, 29 January 9.00 a.m.-8.00 p.m.  
Tuesday, 30 January 9.00 a.m.-8.00 p.m.

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## Scheduler

Excess Insurance is part of a major international corporation with insurance interests throughout the world. We now need the services of an experienced Scheduler to join our Data Control Department at our Head Office in Worthing.

It will be an advantage to the applicant to have a background in either data control or computer operation. On the other hand we are prepared to train someone who is willing to learn a worthwhile and satisfying job.

Our current computer is a 370/148 and an IBM 3031 is due for installation in June 1979.

A good salary is offered according to experience and you will enjoy excellent working conditions at our modern offices. Benefits include a non-contributory pension scheme and free life assurance and a mortgage subsidy when applicable. A licensed Sports and Social Club with swimming pool and full sporting facilities together with a flexible 35-hour week, staff discounts, four weeks holiday and luncheon vouchers.

For further details or application form, please write or telephone Irene Northcott, Personnel Officer, Excess Insurance Group, The Warren, Worthing, West Sussex BN14 9QD Telephone Worthing (0903) 39933.



Excess Insurance Group

## IS YOUR CONTRACT AS GOOD AS THIS?

- |                                                                                                  | YES                      | NO                       |
|--------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| 1. BASIC SALARY — £6.5K-£7K                                                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. GUARANTEE — £3K                                                                               | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. COMMISSION — 3% upwards                                                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. TARGET EARNINGS — £15K plus                                                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. QUOTA SALES TARGET — £15K                                                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. COMPANY CAR PLUS FULL TERRITORY EXPENSES                                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. MANAGEMENT IN SIX MONTHS — IF YOU MEET QUOTA                                                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. PRODUCT — The Largest Selling Mini Computer World Wide                                        | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. THE COMPANY — A Multinational British Group                                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. THE APPOINTMENTS — New and Due to Expansion                                                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. SALES SUPPORT RATIO — 4:1                                                                    | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. SALES BACKING OF — Seminars, Exhibitions, Mail Shots, Advertising, Installation, Support     | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. TERRITORY — City-based — Central London — and Large Bucks.-based — Home Counties — and Large | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. RESTRICTIONS — No Named Accounts, No Vocational Limits                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. ACTION — Phone to discuss and fix interview. Ref. MMH.                                       | <input type="checkbox"/> | <input type="checkbox"/> |



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- B. — Ex Analyst — 3 years in Sales, now Sales Manager earning c. £15K p.a.
- C. — Ex Analyst — 18 months in Sales earning c. £12K p.a.
- D. — Ex Engineer — 6 months in Sales earning c. £12K p.a.
- E. — Ex Programmer — 4 years in Sales earning £25K p.a.

We could go on; in fact, approximately 30% of all Salesmen we place have never sold before, and in most cases they had not even considered a career in sales — until they met with I.M.P.C.  
A large proportion of our success is due to our expertise in identifying **potential salesmen**. We have many clients, one in particular, who is prepared to offer training of up to six months' duration in order to capitalise on **your potential**. They are a multi-million pound company to the forefront of the computer industry, who offer probably the most professional training scheme in Europe.

The investment our clients are prepared to make in your future include: a basic salary of between £5K and £7K, substantial income guarantees, Company car, and a genuine income potential of c. £17K after training.

Ideally, we are seeking candidates aged between 22 and 30, articulate, numerate and "open minded" enough to talk to our career advisor. You will be given an immediate assessment and, if successful, an introduction to our clients. This is an Outstanding opportunity for successful candidates to begin a lucrative and exciting new career.

Telephone NOW for an appointment quoting ref. no. DVW 79/3.



**INSIGHT MARKETING & PERSONNEL  
CONSULTANTS LIMITED**  
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LONDON W1M 4AJ  
Tel: 486 5644



## KUWAIT

**£10K - £12K PLUS BONUS OF £1K - £4K**

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The Company is a substantial trading organisation based in Kuwait and who market their products in the Gulf States.

Equipment agencies include: Caterpillar, Volvo, Koehring, SKF, Barber Greene, Raygo, Crane Fruehauf, Unilever, Rowntree Mackintosh, General Electric, 3M, Burroughs.

They have recently launched the Burroughs B80/B800 range of equipment and are to appoint:

**SENIOR SALES REPRESENTATIVE** who should have  
3 YEARS' EXPERIENCE B1700/B1800  
Some experience in the use of DMS II  
Aged 24 upwards — married or single  
Capable of installing B1800 with minimum technical advice  
Some experience in the use of NDL  
Some Supervising experience

2 YEARS' PROVEN EXPERIENCE — B1700/B1800 2 years' COBOL EXPERIENCE  
B80/B800

Some training experience

Age 22 upwards — married or single

The positions are permanent and include benefits such as:

Tax Free Income  
Travel Assistance where appropriate  
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Phone or write for a full job specification and interview. Ref. MMH.

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Disciplines

## EXPERIENCED SOFTWARE ANALYST/ PROGRAMMER

Circa £6,500 pa  
Surrey / Sussex / Hampshire Border

We have a vacancy for a Software Analyst/Programmer with a minimum of 3 years' Cobol Programming experience, including Burroughs large systems DMSII and GEMCOS. Candidates must be willing to work on call and work considerable overtime.

Duties include programming of utilities and software aids, in the Burroughs 6800 environment.

Fringe benefits include membership of the ICI Pension and Profit Sharing Schemes, restaurant and recreational facilities.

Please apply to:  
**Mr. P. J. Thomas, Personnel Officer, ICI Plant Protection Division**  
Farnhurst, Haslemere, Surrey

Tel: Haslemere 4081



Plant Protection Division

## WAYNE KERR

(Wilmot Broadband Electronics)  
Durban Road, Bognor Regis, requires the following additional staff:

## DEVELOPMENT LABORATORY

**SOFTWARE DESIGNERS/PROGRAMMERS**  
To join Software development team and work a range of new micro-controlled instruments and test equipment.  
Experience of 8080/280 micro, device handlers and use of micro-computer development systems is essential. High level languages an advantage.

## JUNIOR DESIGN ENGINEER, 21-26

Good opportunity for recently qualified / trained engineer to help design advanced micro-controlled instruments. Good career prospects and exciting technical work.  
Opportunity also available for suitable Undergraduates for vacation work.

Please apply by telephone or in writing to:  
The Personnel Manager  
Wilmot Broadband Electronics Limited  
Durban Road, Bognor Regis, West Sussex PO22 8BL  
Telephone: Bognor 28811

## COMPUTER VACANCY

Urgently required Computer Person with ability to operate Honeywell P11 Punch and Honeywell 58 Computer (with ancillary equipment). Person will be responsible for running our aging computer into retirement and effecting a smooth transfer to a modern system.  
Salary negotiable.

Apply: M. CLUBB  
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## INFOTECH NEEDS YOU

Infotech Design Technology is the world's leading methodology for producing systems and programs from requirements specifications. To maintain and extend our success, we need a

### SALES EXECUTIVE — £12K

to sell DP management, both in the UK and abroad, about the advantages of Infotech Design Technology. You must understand the programming environment, and be able to talk convincingly at all organisation levels.

- up to £12K remuneration package
- a company car
- opportunity to travel abroad
- a unique product which is achieving world wide acceptance

### LECTURER/CONSULTANT — £8K

to teach the theory and the practice of Infotech Design Technology, to provide on-site support to users of the technology, and to develop new ideas that will keep Infotech and yourself ahead of the rest. Promoting experience is essential, knowledge of data-structured design methods would be an advantage.

- up to £8K salary
- opportunity to travel abroad
- exposure to a variety of customers and applications

Infotech Design Technology ensures that users achieve the right systems and programs for their needs — on time, every time. This methodology results in:

- systems and programs that work first time
- accurate documentation
- precise project control
- easier enhancement
- flexibility in allocating staff
- language and hardware independence

Both of these positions are based in Maidenhead, an attractive residential area on the Thames, within easy reach of London via the M4 or British Rail. The future with Infotech is limited only by your own imagination. Telephone Mayer Wachtman on (0628) 35031 to discuss how you and Infotech can work together.



**IML** Infotech Methods Limited  
Nicholson House Maidenhead Berkshire SL6 1LD England. Telephone Maidenhead (0634) 35031 Telex 847319

## Systems Co-ordinator

Central Lancashire, to £7,000

A subsidiary of a major British group, our client manufactures and markets capital equipment for use in breweries, dairies and related industries. The company, which will install a computer later in the year, is undertaking a comprehensive review of its operational systems and has created this new position to co-ordinate the design, development and implementation of the new systems. Reporting to the Managing Director, the Systems Co-ordinator will liaise with outside consultants and bureaux, and with the departments concerned, to ensure the success of this exercise. Additional responsibility will be for the installation of the hardware. Applicants, probably around 30, will have at least three years' experience of systems design, and will have had total responsibility for the design and implementation of a major system.

C.G. Moores, Ref: 24150/CW  
Male or female candidates should telephone in confidence for a Personal History Form to:  
MANCHESTER: 061-236-8981, Sun Life House, 3 Charlotte Street, M1 4HB



**Hoggett Bowers**  
Executive Selection Consultants  
BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE and SHEFFIELD



## A CAREER IN INTERNATIONAL BANKING

### The Environment

Chemical Bank is one of the largest banking groups in the world. Within the European area of the International Bank division a systems group has designed and implemented integrated real-time banking systems in seven locations. Further applications are under development to enhance and complement the existing systems which run on the DEC PDP11 range. Systems are developed and maintained by self-contained project teams working to closely defined procedures. Considerable opportunity exists for career development in an exciting and dynamic working environment.

### The Benefits

In addition to the substantial salaries there is a generous package of benefits:

- Subsidised mortgage schemes
- Non-contributory pension
- Profit sharing
- Free life assurance
- Free lunches
- Personal loans
- Interest-free season ticket loans

### The Positions

The following positions will appeal to those with a good educational background and mini-computer experience who can demonstrate a professional approach and are prepared to undertake extensive travel within Europe at the Bank's expense.

#### Senior Programmer Analyst Salary circa £8250

- \* At least two years' experience in structured system design.
- \* A solid programming background.
- \* Financial or banking systems experience essential.
- \* Supervisory experience.

#### Programmer Analyst Salary circa £7500

- \* At least three years' programming experience.
- \* One year of structured system design.
- \* Financial or banking system experience preferred.

#### Programmer Salary circa £5500

- \* Minimum two years' programming experience.
- \* Experience in BASIC an advantage.

For further details please write or telephone Mark Irens. All applications will be treated in the strictest confidence.

Reference CW 419/1

HUTTON EXECUTIVE SELECTION LTD.  
HUTTON HOUSE,  
HUTTON STREET, LONDON EC4Y 8HP

TELEPHONE: 01-353 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

## Marketing Specialists

Central London based with some European travel  
Salary package circa £10000

Our Clients enjoy one of the best reputations in the world for marketing and training resources. Enhancement of the U.K. Marketing Department has created two further vacancies.

### Product Specialist

To take responsibility for the marketing of a specific product. The job includes pricing, stocking, configuring, creation of literature and sales aids, training, liaison with the Company's European Headquarters, support at large sales negotiations, presentations, analysis of competition and general support at a senior level.

Candidates should have a good knowledge of applications, software and operating systems and an appreciation of hardware technicalities and COBOL.

### Application Specialist

To control specific applications areas relating to Trade and Industry and in particular such areas as depot accounting and other distributed data processing applications.

The job involves researching specific applications areas, helping to create packages, planning sales campaigns, training, running sales workshops together with product specialists, supporting large sales negotiations, and generally offering troubleshooting and support back-up at a senior level. Applicants to the job will clearly identify closely with this specification and have the necessary experience upon which to draw.

Applicants to both positions could come from a variety of backgrounds such as sales, marketing, support, software house, large commercial U.P. user etc. Preferred but not essential is an age group of between 28 and 35 and an education to Degree or equivalent.

These are two first class opportunities and interested applicants should contact BOB BOWER Advising Director to arrange an early interview.

Reference CW/219/2

HUTTON EXECUTIVE SELECTION LTD.  
HUTTON HOUSE,  
HUTTON STREET, LONDON EC4Y 8HP

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## Computer Sales Executives

London, Midlands, The North, The West  
Salaries to £8,000 Quota Earnings £20,000

We have been instructed by our Clients to identify the really top-class sales executives of 1978 whose ambition should lead them to even greater things (earnings, responsibilities, benefits etc.) in 1979.

You may not be considering moving from your present company at this time but we would still like to know about you if you are doing well.

You should know exactly what the opportunities are at the moment and we should certainly know if your success and ambition could lead to a better job, either now or later.

Make certain that we know about you by contacting Mark Irens to arrange a meeting anytime between 8 a.m. and 6 p.m.

Reference CW/219/4

HUTTON EXECUTIVE SELECTION LTD.  
HUTTON HOUSE,  
HUTTON STREET, LONDON EC4Y 8HP

TELEPHONE: 01-353 7141 (24 HOURS)

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**THORBAR**  
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Greenock House 19 Cuckfield Road Hurstpierpoint Sussex

Telephone 0273 833848

Ref. CW/6/79

SPECIALISTS IN DP AND EXECUTIVE RECRUITMENT

## CAREER-MINDED PROGRAMMERS MOVE ON!—MOVE UP!

Our client operates in a highly user-orientated environment providing sophisticated packaged solutions tailored to meet individual needs. At present they have an ICL mainframe but have recently completed a major review of their computing needs and, in consequence, are planning a replacement within the next few months to provide much increased central processing power. Other developments include the further development of on-line communications facilities with a network and mini computers providing distributed intelligence at remote centres. In preparation for the introduction of the new equipment a number of additional Programmers of varying experience are to be recruited.

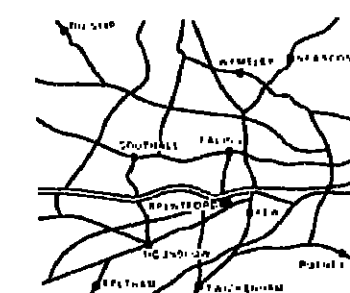
### PROGRAMMERS c £4,600

- Up to 18 months solid programming experience required
- Cobol preferred but Fortran or any assembler acceptable
- Any hardware, mainframe or mini
- Commercially orientated
- Knowledge of or exposed to structured programming techniques an advantage
- 'A' level or equivalent education desirable

### JUNIOR PROGRAMMERS c £4,000

- Ideally with 6/12 months' practical programming experience preferred
- Computer Science Graduate acceptable, especially those with industrial experience
- Retraining to Cobol provided in appropriate cases
- Any hardware
- Commercial awareness useful

PLEASE WRITE OR TELEPHONE NOW TO MAKE IMMEDIATE ARRANGEMENTS FOR INTERVIEWS TO TAKE PLACE IN LONDON OR THE SOUTH — OR IF MORE CONVENIENT TELEPHONE JACK COLLINGS BETWEEN 7 P.M. and 9 P.M. WEEKDAYS OR WEEKENDS ON (0273) 400880



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### CHIEF PROGRAMMER SAUDI ARABIA

around £14,000 TAX-FREE renewable contract

+ COMPANY CAR + TERMINAL BONUS + SCHOOLING ALLOWANCES  
+ FULLY FURNISHED FLAT (married/single) + FREE UTILITIES

THIS OUTSTANDING PACKAGE offers the opportunity to make considerable savings while working on fourth generation equipment.

OUR CLIENT is a national bank, which has recently installed an NCR Criterion mainframe after undertaking a thorough feasibility study. Further computers will subsequently be installed. The D.P. Department has been established with U.K. staff, but the post of Chief Programmer remains vacant.

ENVIRONMENT. The country is politically stable and the economy very strong. The climate is hot, but air-conditioning is normal. While facilities are limited, such sports as fishing, swimming and riding are available, and there is scope for adaptable individuals to enjoy an active social life within the large expatriate community.

A SELF-CONTAINED FLAT is provided, this being furnished to a high standard (including freezer, cooker, linen and cutlery).

GENEROUS SCHOOLING ALLOWANCES are given, a local English school offering good education up to the age of eleven.

#### RESPONSIBILITIES:

All aspects of the supervision of a team of five expatriate programmers and several locally recruited trainees.

#### REQUIRED PROFILE:

1. Minimum of 7 years' programming including good COBOL, utilising advanced operating systems
2. Experience of leading a programming team
3. Knowledge of on-line systems

WE WOULD ALSO be interested in talking to candidates for the post of Senior Programmer.

Salaries are reviewed annually.

PLEASE TELEPHONE without delay on 01-540 8311. DPSC Group Ltd., Crown House, Morden, Surrey.

Crown House Morden London SM4 5EU  
consultancy division  
01-540 8311

24-hour answering service

**DPSC**

Ref. CW943

*John Collins Ltd.*

# KNIGHT PROGRAMMING SUPPORT LIMITED



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IMS COBOL PROGRAMMERS ..... c.£230 MIDLANDS	1900 GHI/GHI COBOL PROGRAMMERS c.£215 NORTH, MIDLANDS
370 PL/1 PROGRAMMERS ..... c.£220 NORTHWEST, MIDLANDS	
CICS COBOL PROGRAMMERS ..... c.£230 NORTH, MIDLANDS	OTHERS
HONEYWELL L66 PROGRAMMERS ..... c.£220 SCOTLAND	
HONEYWELL COBOL PROGRAMMERS ..... c.£220 MIDLANDS, NORTHWEST, SCOTLAND	
UNIVAC COBOL PROGRAMMERS ..... c.£220 MIDLANDS	
PDP 11 BASIC PROGRAMMERS ..... c.£230 MIDLANDS, NORTHWEST	

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## PERMANENT NORTHERN OPPORTUNITIES

### COBOL and SYSTEMS PROGRAMMERS LEEDS to £5712

A lucrative self-financing productivity payment is offered by our client. They are now operating ICL 1900's under GEORGE 3 and are installing a 2972 and 2900 to be run under VMEB. Our client requires programmers with COBOL experience, also systems programmers for a technical support team.  
Ref: 1071 and 1075

### IBM PROGRAMMER NORTHWEST c.£5000

Our client, a company situated on the Lancashire coastline, are building a new plant. Due to this expansion they require programmers with a minimum of two years COBOL. Experience of CICS and DATA BASE PL1 would be an advantage. Work involves varied commercial applications.  
Ref: 1064

### SENIOR SYSTEMS ANALYSTS NORTHWEST to £6237

The company are at present on overloaded 1904s and are converting to a 2972 and a further 2900 is to be installed, that will run under VMEB. Analysts are needed immediately on the investigation design and specification for new applications and for further developments of existing system. Lucrative company benefits offered.  
Ref: 1074

### PROGRAMMER LIVERPOOL to £6000

Benefits from this company include an annual bonus, a non-contributory pension scheme, flexi time and luncheon vouchers. ICL 2904, COBOL and EXEC 2 experience would be a definite advantage. Other company hardware includes IBM and HONEYWELL.  
Ref: 1063

### SYSTEMS ANALYSTS YORKSHIRE to £6000

Our client, a rapidly expanding young company, offer a 10% to 15% bonus plus a company car or generous car allowance. DEC PDP 11 experience and knowledge of BASIC+ and RSTS is preferred. Each analyst has a portfolio of client who he deals with specifically from feasibility to implementation.  
Ref: 1048.

### PROGRAMMER LANCS to £5000

Our client, an expanding company offer to employees a 3 1/2% mortgage interest rate and a productivity bonus. Programmers with an IBM background and experience of ASSEMBLER or PL1 are required. A VM/CMF interactive programming systems operation where programmers use the computer terminals.  
Ref: 1057

FOR DETAILS OF THESE AND OTHER VACANCIES PLEASE CONTACT  
JOAN JOHNSTONE, 143/144 ROYAL EXCHANGE MANCHESTER. TEL.  
NO. 061 833 9341/5.

COMPUTER PERSONNEL CONSULTANTS

## Senior Computer Operator

Candidates for this job should be at Operator or Senior Operator level and should have at least 2 years 1900 range and George 3 experience. A proven high level of understanding of G3 is required.

The Laboratory at present runs a 256K ICL 1904S for scientific research work, using both MOP and background. As well as the terminal configuration, a network of mini computers is connected to the 1904S.

In the near future a second 1904S will be added, accessing the same file store.

by use of a special version of George 3. Working hours are evenly split between 8.30 - 16.30 and 14.00 - 22.00 Monday to Friday.

The Laboratory is housed in modern buildings in pleasant surroundings and offers benefits including subsidised canteen, sports and social club and staff shop.

Men or women should apply, quoting reference 125 to M. L. Malpass, Personnel Manager, Philips Research Laboratories, Cross Oak Lane, Salford, Nr. Redhill, Surrey.



PHILIPS

## Programming ... West Germany ... and £10,000-£12,000 p.a.

### An international opportunity for talented programmers

Sandvik GmbH, Dusseldorf, is the German sister company of Sandvik U.K. Limited and part of the international Swedish group engaged in a wide range of engineering activities.

The appointment of a Programmer in Dusseldorf offers an outstanding career opportunity for either a young high-flyer or a more experienced person with real talent to progress within the framework of the Sandvik organisation. The hardware is an IBM 370/158 with a disc operating system, and work involves EDP applications in the commercial range including financial and cost accounting, together with order processing, despatch and invoicing.

Candidates must have a sound knowledge of COBOL and IBM (CICS) experience would be useful. Whilst a working knowledge of German would be an added advantage, it is not essential providing candidates are willing to learn sufficiently.

Salary will be equivalent to £10,000-£12,000 p.a. and additional benefits, which are those expected of a major international group, include generous assistance with relocation expenses. An initial interview will be held in the UK at Sandvik (Halesowen), please write or telephone for an application form in the first instance to:

David Davis, Personnel Manager, Sandvik U.K. Limited, Manor Way, Halesowen, West Midlands B63 8DZ. Telephone: 021-560 4700.

SANDVIK

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**Noble Lowndes**  
and Partners Ltd.

## ANALYSTS to £6500 PROGRAMMERS c. £5000

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For more than 40 years Noble Lowndes and Partners have been pioneers and market leaders in their field. Computing has played an integral part since 1959. Analysts and Programmers joining this installation will therefore have the security of working for a highly successful organisation and the interest that the future will bring through the company's determination to stay ahead.

Currently the DP department, which is based in Croydon, is small but utilising large IBM 370 hardware operating under MVS. Current plans include the introduction of distributed processing, database systems, and word processing.

Analysts should have a broad commercial background. Training will be provided in specific technology and applications.

Programmers should have a good COBOL background. IBM knowledge would be valuable but not essential. On-line program development is utilised.

The essential for both analysts and programmers is the desire to build a career with the company and to work in a growing department. The opportunities are there — maybe you should be too!

Initial applications should be made by telephone or in writing to Capp Associates CROYDON office. Starting salaries will be as shown and benefits are good.

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF. CW 107.9H.

Please note new address — same phone number

COMPUTER AND  
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**CAPP ASSOCIATES**  
LONDON AND MANCHESTER



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A.M.P. HOUSE, DINGWALL RD.  
CROYDON, CR9 2AU

# MYRIAD

## INTERNATIONAL SYSTEMS IN CENTRAL LONDON OILFIELD SERVICE INDUSTRY

### ANALYST/PROGRAMMER—MINIS To £6500

This position requires an enthusiastic person, with drive and good communicative skills, to be responsible for the design and subsequent implementation of a major, international system. Joining the 'mini' division in a senior capacity, the successful applicant will have developed systems in a small machine environment (RPG II will be an advantage but is not essential) and will possess proven analysis experience. A variety of systems are being developed and will be implemented initially at sites in Europe.

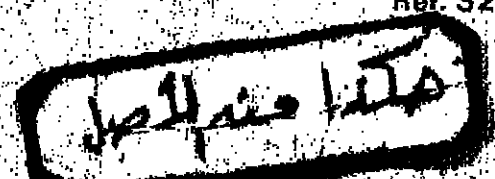
The possibility of a world-wide network based on IBM System 34 equipment is now being considered and for this reason candidates must be prepared to work abroad occasionally for periods of three to four months.

The mainframe division requires an Analyst/Programmer to develop sophisticated management accounting systems. COBOL Programmers will also be considered for this position and the salary will be circa £6500 depending upon experience.

The company is based in Central London and is within one mile of four British Rail main stations. A season ticket loan is provided along with LVs, 4 weeks' holiday and a first-class NON-CONTRIBUTORY PENSION SCHEME.

Ref: S2/2601

**MYRIAD APPOINTMENTS LIMITED**  
30 Fleet Street London EC4Y 1AA  
01-353 0981 24 HRS.





## MYRIAD MITCHAM

Our client is seeking to expand its small data processing department by recruiting three systems and programming professionals. Operating a recently installed ICL 2904 with 20 VDUs the company is keen to develop additional systems, both on-line and batch. Applicants with experience of on-line systems using MTS will be of particular interest.

### SYSTEMS ANALYST

To £6,500

Candidates will have developed a system from feasibility study to final implementation and will be able to write clear reports and specifications and handle all aspects of systems work in a busy and varied environment. Reporting to the DPM, the Systems Analyst will work closely with users and will be responsible for project control.

### SENIOR PROGRAMMER

To £6,500

To head up the programming group the Senior Programmer will have programmed for 4 years, recently on ICL equipment and possess a strong COBOL knowledge. The successful applicant will be responsible for the progress and quality of all programming work and will define standards and advise on languages and utilities.

### ANALYST/PROGRAMMER

To £6,000

This position requires a COBOL background coupled with analysis involvement, preferably at an ICL installation. Programming both batch and on-line systems in COBOL and Filetab, the Analyst/Programmer will work closely with colleagues on a variety of commercial/industrial systems and will be fully trained in appropriate areas.

Persons joining the department now can expect a most interesting and rewarding future as the company is fully committed to increasing DP applications as new technology becomes available.

### MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA

01-353 0981 (24 HOURS)

### Ambitious Analyst?

London, Manchester, Leeds.

Over £6,000+car. Freedom. Mobility. Responsibility.

Become a key individual in the fastest growing microcomputer company in Europe.

Contact Jim Davies for the facts that matter.

0992 50541

UNIVERSITY OF LIVERPOOL DEPARTMENT OF PHYSICS

To assist Academic Staff engaged in research in Solid State Physics. The Group uses microcomputers, PDP11s and an IBM 360/85. There are links to the S.R.C. large computer.

Successful candidate will be required to assist the provision of programmes for collection and surveillance of data in real time and for its analysis. Good opportunity to gain experience. Degree or equivalent essential. Salary according to age and experience on scale for Experimental Officers (up to £5,604 p.a.) or Senior Experimental Officers (up to £5,555 p.a.); these scales are under review.

Application forms from The Registrar, The University, P.O. Box 147, Liverpool L69 3BX. Quota Ref: RV/16H/CW

## William Key

### Senior Operations Opportunity

South London

Salary range £6,000-£7,700

Our client, a large public service company based just south of the Thames is seeking a Senior Development Interface Analyst to run a small specialist team within the Operations Division.

The main objective is to set up and maintain high professional standards in certain operational areas including handover procedure for new and amended applications, disk space management, systems integrity and security, hardware evaluation and resource allocation and control. A vital interface is the close liaison with Planning and Development staff in all stages of systems development to ensure that Operational Standards are observed and that applications can be accommodated within the available resources.

The Company operate twin IBM 370/158 processors under OS/VS with a wide range of peripherals, including a large network of 300 remote terminals supported via CICS/VS. This is a non-shift position, but carries the responsibility for an evening standby support service on a rota system, for which appropriate allowances will be paid.

This is an exceptional opportunity for candidates with strong IBM operations experience both to obtain a good position within a progressive Operations Department, and to widen their scope for future advancement in an organisation determined to provide full career paths for Operations Staff.

The appointment will be made according to age and experience, in the range of £6,000 to £7,700 (under review shortly). Company benefits include at least 23 days annual leave, subsidised restaurant facilities and a low interest season ticket loan scheme.

Your INTERVIEW can be arranged now by telephoning Richard Bulgin on 01-493 2947 (day) or Rickmanworth 76143 (evenings/weekends) or by writing to William Key & Partners FREEPOST 4 London W1E 8UZ (No stamp required)

Ref CW973

WILLIAM KEY & PARTNERS • 4 HALF MOON STREET, LONDON W1

Computing Services Recruitment

# Project Leadership Programming/Analysis

London EC4

Up to £8,000

Our client is a well-known international export finance and marketing organisation, part of a major banking group, whose recent growth and diversification have led to the installation of new and more sophisticated hardware, with correspondingly increased demands on the Data Processing team.

This is an opportunity for an able programmer/analyst (male or female) who can contribute at project leader level rather than simply at that of an analyst, you will gain first-class experience which will notably accelerate your personal development. You will handle projects from inception/design through to implementation, working more closely with line management at the centre of things and in a less detached role than usual. Training of users in these new on-line systems is an important part of the job.

You should have three to five years' commercial programming experience in more than one language, good analytical skills and must be able to work independently whilst integrating as a member of the total management team.

The Company is located conveniently near Mansion House tube station. A competitive salary will be negotiated and benefits include paid overtime, pension, LVs and other items.

To hear more, please telephone B. Duveen, in confidence, to see if this position meets your needs, or write or ring for an application form, quoting ref. 477/BD/CW to Moxon Dolphin & Kerby Ltd, 60 St Martin's Lane, London, WC2N 4JB, 01-836 1500.

MOXON DOLPHIN & KERBY LTD  
MANAGEMENT SELECTION

UNIVERSITY OF STRATHCLYDE

Applications are invited for

### COMPUTING OFFICER

in the COMPUTER CENTRE which carry out a wide range of computing services for the University of Strathclyde. The successful candidate will be required to assist the provision of computer services to the University of Strathclyde. The successful candidate will be required to assist the provision of computer services to the University of Strathclyde.

The successful candidate will be required to assist the provision of computer services to the University of Strathclyde. The successful candidate will be required to assist the provision of computer services to the University of Strathclyde.

Application forms and information leaflets are available from the University of Strathclyde, Glasgow G1 1RH, or from the Computing Centre, Glasgow G1 1RH. The successful candidate will be required to assist the provision of computer services to the University of Strathclyde.

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Ref. RW 4/1

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Ref. 4/4

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**Sampson Staff** 15 Piccadilly, Manchester M1 1LT. Tel: 061-832 4184.  
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This post is open to male and female applicants.

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City to £7500 + Mortgage

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Reference PG 4/1

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West End to £6750

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Reference PG 4/2

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Reference PG 4/3

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Reference HK 4/4

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Reference HK 4/5

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Reference HK 4/6

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## SYSTEMS PROGRAMMER

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### PROGRAMMER

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For further information contact  
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## Technical Author

Atkins On-Line is a fast-growing computer services bureau with a network of offices extending throughout the U.K., U.S.A., in Canada and Holland. We currently have a rewarding opening for a Technical Author who will prepare documentation to assist clients in using our computer programs, and our timesharing and remote batch services.

The successful man or woman will have closely with computer programmers to understand programs and how to use them. Armed with this information he/she will write manuals, user guides, workbooks and other documentation to guide clients in the use of our products and services. Candidates should be able to write in good, clear and concise English and be able to understand the difficulties clients might experience in using computer programs. He/she should have a quick, logical mind and a broad experience of business, industry and engineering. Some knowledge of computers and timesharing would be an advantage.

In addition to an attractive salary, we offer good conditions of employment and benefits including an excellent pension scheme and relocation expenses if applicable.

For further details please telephone  
Helen Mackett,  
Personnel Manager,  
Atkins On-Line Ltd.,  
Fourmoot House,  
12-22 West Street,  
Epsom, Surrey.  
Tel: Epsom 29678



## Chief Applications Programmer

Applicants should be fluent in FORTRAN and have knowledge of some relevant applications packages.

## Chief Program Adviser

Applicants should be able to program in at least two languages, FORTRAN, COBOL, BASIC, or ALGOL and have experience in dealing with people.

The Department provides a service to the Polytechnic based on the DEC 20 timesharing machine plus PDP 11/40 and a Data General Nova.

Salary for both posts: £501 scale £4020-£6091-£8288 plus a supplement of £312.

Further details and form of application available from the Assistant Director and Chief Administrative Officer, Trent Polytechnic, Burton Street, Nottingham. Closing date: 8th February 1979.

**TRENT POLYTECHNIC NOTTINGHAM**

## Sales Executives

Computer Peripherals and Data Logging Systems

c.£5,000 basic + commission (no limit) + car.

Are you a young ambitious salesman with a good proven sales record plus a background in data processing and electronics? Then this could be your next step up.

Cristle Electronics Ltd., an established young expanding company, have recently launched two new microcomputer based products—an intelligent cassette terminal and a portable datalogger. Two self-motivated salesmen are needed to sell these products throughout the UK. Promotion prospects are wide open to Director level.

If you know you have the dynamism and background to meet the challenge.

Telephone: John Scott, Gloucester (0482) 35528  
PER Director House  
Station Road, Gloucester GL1 1TA  
Applications from both men and women are welcome.



**Cristle**

## LONDON BOROUGH OF HOUNSLOW

Hounslow Borough College

## DEPARTMENT OF BUSINESS STUDIES

Lecturer 2 to teach Business Data Processing and Computer Studies in BSC, Bachelor and General MS, TOPS and other courses, including business currency and statistics and to accept a deputy responsibility.

Salary £4,011-£6,550

For further particulars and application form from The Principal, Hounslow Borough College, London Road, Twickenham TW9 1TH, or on request of a C.A.E. Closing date: 14 days from appearance of advertisement.

## Full-time Programmer to join international research group

The European Data and Transport Association requires a programmer with knowledge and experience in FORTRAN and ALGOL to work at the U.K. headquarters at Southampton University.

Applicants should be able to write in good, clear and concise English and be able to understand the difficulties clients might experience in using computer programs. He/she should have a quick, logical mind and a broad experience of business, industry and engineering. Some knowledge of computers and timesharing would be an advantage.

In addition to an attractive salary, we offer good conditions of employment and benefits including an excellent pension scheme and relocation expenses if applicable.

For further details please telephone Helen Mackett, Personnel Manager, Atkins On-Line Ltd., Fourmoot House, 12-22 West Street, Epsom, Surrey. Tel: Epsom 29678

## THE UNIVERSITY OF STIRLING DEPARTMENT OF COMPUTER STUDIES

Applicants are invited from suitable backgrounds for the post of Lecturer in Data Processing and Micro-Technology in the School of Computer Studies. The Department provides a student Computing Service to support the department through a large DEC system 10.

Salary on the Academic Staffing Scale £3,984-£6,064 (scale 10-12).

Further details available from the Academic Development Officer, Stirling University, Stirling FK9 4LA, to whom applications accompanied by a curriculum vitae and the names of 3 referees should be sent by 8 February 1979.

Further details available from the Academic Development Officer, Stirling University, Stirling FK9 4LA, to whom applications accompanied by a curriculum vitae and the names of 3 referees should be sent by 8 February 1979.

Further details available from the Academic Development Officer, Stirling University, Stirling FK9 4LA, to whom applications accompanied by a curriculum vitae and the names of 3 referees should be sent by 8 February 1979.

# Computer Professionals International Banking Systems

## Systems Support Programmers

Salary to £6200 plus up to 15% bonus.

We require experienced systems support programmers to assume responsibility for supporting, enhancing and controlling our production systems. The major programming language is PL/I, but we would consider people experienced in other languages for re-training. A knowledge of banking systems, especially in the areas of Facilities and Commercial Loans, will be a distinct advantage.

## Data General Programmer

Salary to £6200 plus up to 15% bonus.

We require an experienced data general programmer with COBOL, and if possible some Assembler experience to work on the development of a sophisticated FOREIGN EXCHANGE DEALERS' DISPLAY SYSTEM. You will be the senior in-house applications programmer on the project and will be expected to take overall responsibility for supporting the production system, as well as playing a key role in its development and enhancement.

## Systems Analyst

Salary to £6800 plus up to 15% bonus.

We require an experienced systems analyst, preferably with some banking knowledge, who, depending on the qualifications of the selected candidate, will work either on the development of new banking systems or on reviewing the quality and adherence to standards of these systems.

**Morgan Guaranty**  
Trust Company of New York

**The Challenge** Our programme systems development team is currently implementing the first phase of the bank's advanced system for the first time.

Experienced staff are needed for further development and support of these systems which play a key role in the bank's international business.

### Our Environment

\* Twin IBM 370 mainframes \* Data General Eclipse \* DEC VAX \* CDC Aes \* PL/I, COBOL & Assembler

### Our Aids

\* On-line LIBRARIAN \* LEXICON data dictionary \* Jackson structured design \* Word Processing documentation support

**Your Future Prospects** Long Range systems development plans are approved which will provide significant opportunities for really orientated DP staff. Our training is directed at developing your expertise to ensure that career development is directly linked to your contribution and achievements.

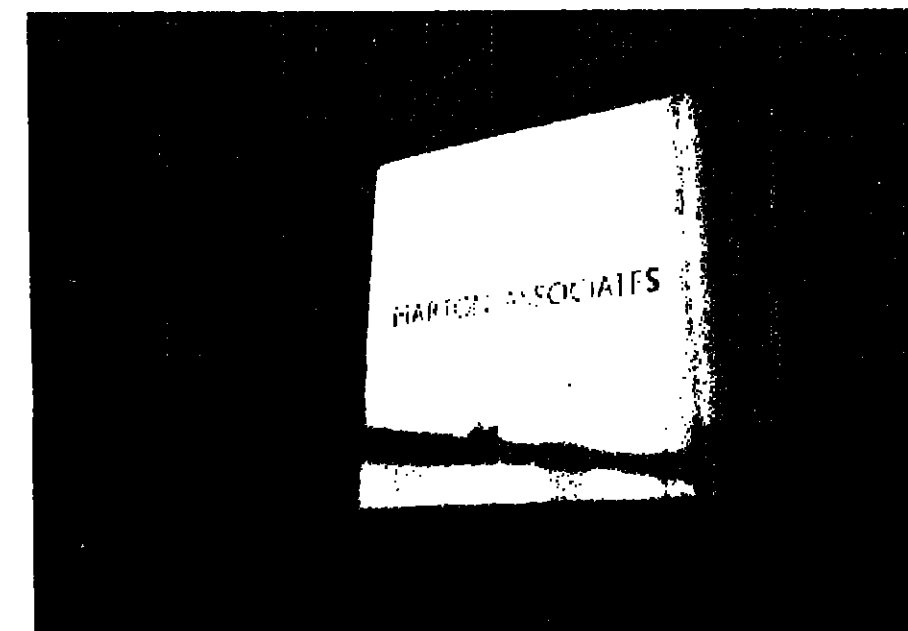
**Our Location** A modern office block in Stratford, E15 with its own private car park and subsidised staff dining facilities. It's easy to get to because it's on the Central Line and numerous bus routes, all pass through Stratford.

**The Rewards** In addition to an excellent salary and bonus, we are offering low-interest mortgage facility (currently 2% a year), non-contributory pension plan, company ticket loan (interest free), free medical and life insurance, and free car parking.

If you are looking for a progressive career in DP with one of the leading international banks, please telephone or write for an application form to: Bill Swinson, Morgan Guaranty Trust Company of New York, 100 Broad Street, 33 Lombard Street, London EC3P 3BH. Tel: 01-555 8111 ext. 216.

## MARTON ASSOCIATES OF TRAFALGAR SQUARE

Specialist's in the complexities of today's recruitment market. Our selection staff have first hand experience in management sales and all aspects of the computer industry.



### AREA SALES MANAGERS

### THROUGHOUT UK

£20,000+

Our Client, a leading manufacturer of distributed mini computer systems is expanding so successfully that several vacancies are occurring for Area Sales Managers. Responsibilities include obtaining new multiple sales from large companies who are IBM based or who seek a stand alone network. Early promotion will extend to team management throughout the U.K. 2010 c.c. Carrot, Bupa, Company Insurance, Pension Fund and relocation expenses. You will already be successful with 3-5 years' mini/mainframe experience. Knowledge of IBM and minis, useful. Must have staying power to negotiate large contracts. Must present a smart image and project well with Senior Management. C100

### SENIOR SYSTEMS ANALYSTS

### NORTH LONDON

£7,200+

A major banking organisation in North London who have installed 1960's seek several candidates with at least 3 years' experience, some preferably on-line. Successful applicants will enjoy the challenge of developing on-line projects with user input. Excellent opportunities to move into management positions. Relocation expenses if required, usual large company benefits.

### SERVICE ENGINEER MANAGER

### MILAN, Italy

£10,000+ Profit Share + Car

Due to continued expansion, our Client, engaged in the design and manufacture of computerised capital equipment with a group turnover of £40 million have a vacancy for a manager in their Milan office. Italian not necessary. Initially, he will be responsible for the installation of sophisticated electronic equipment to industry in the major cities of Italy, and will be expected to train and manage his own team. Applications are invited from young candidates under 35 with a degree in Engineering for equivalent with some experience in Computer, or Electronics associated with Process Control. An attractive relocation package is offered coupled with a company car and excellent career prospects into Technical or General Management. C300 Contact Miss Dine

### OPERATORS

### LEATHERHEAD

to £6,000

A major manufacturer in the heart of Surrey requires two operators (one of senior level) for its on-line IBM installation operating under DOS. The operator will have at least 1 year's experience in DOS and can expect to earn up to £5,000 including shift allowance and overtime. The senior operator will have at least 2 1/2 years' experience (preferably supervisory) and will earn in the region of £6,000. Two shift operation. Good fringe benefits including sports and social club and subsidised restaurant. C400

### CONTRACT/PERM S/AS & PROGRAMMERS

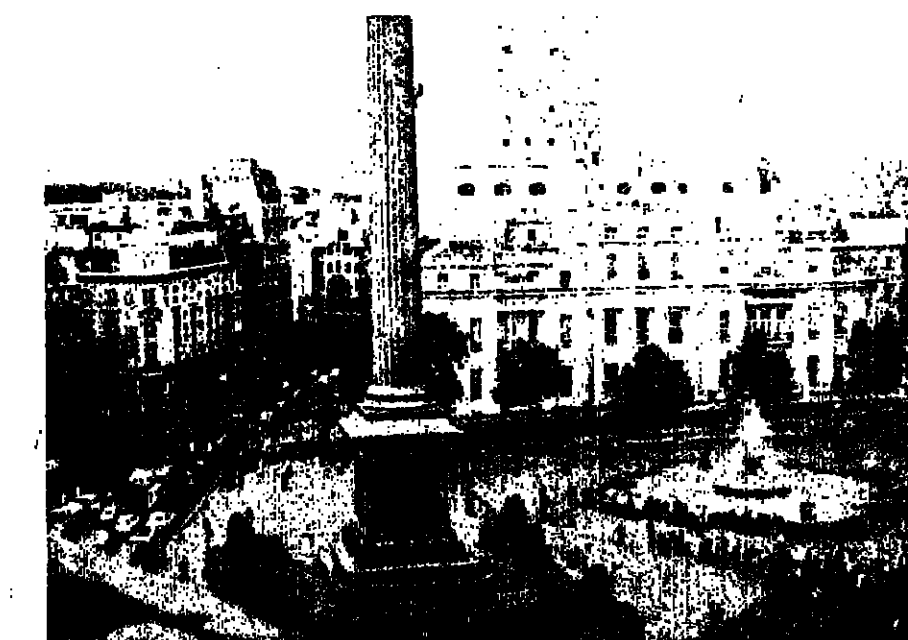
### LONDON AND SE

to £10,000

Beckenham, Birmingham, Borehamwood, Chatham, Croydon, Epsom, Gillingham, Gravesend, Lancing, Oxford, Romford, Tadworth, Uckfield, Watford and throughout London. C500

**WILL HELP YOU  
GET TO THE  
TOP**

Executive and sales people. Consultants, Analysts, Programmers and Operators both permanent and contract. Service engineers and accountants in computer related fields.



**MARTON associates**  
FOR PROFESSIONAL PEOPLE AT THE CROSSROADS.  
Suite 628, Grand Buildings, Trafalgar Square, WC2.  
☎ 01-839 4169. Alternative Lines 839 4689/5107

## KUWAIT UNIVERSITY VACANCIES FOR COMPUTER STAFF

### GENERAL REQUIREMENTS:

1. Direct the design and justification of computer based systems that will meet the needs of the University.
2. Review the progress of jobs in production.
3. Set up and regularly review operational standards.
4. Advise the system analysts and determine the interface between jobs split amongst them.
5. Applicants should have minimum of three years' experience in ON-LINE applications.
6. Priority is given to applicants with experience in University Environments.
7. Biodata should be sent to:

**DIRECTOR OF COMPUTER CENTER  
KUWAIT UNIVERSITY**

P.O. Box 5488  
KUWAIT  
STATE OF KUWAIT

8. All applications must include POSTAL ADDRESS AND PHONE NUMBERS.

## FIELD SERVICE ENGINEER

New Career Start £6,500  
(Plus Quality Car Choice + Free BUPA + Relocation)

One of the world's leading micro computer manufacturers currently enjoying an annual growth rate of 40% is about to launch its own service group. This new venture could be your opportunity to join a dynamic company, gain experience in wide range of industries and applications with prestige products. Start at £6,500, plus £4,600 towards the car of your choice plus many other benefits. If you are a service/customer engineer with good academic background/computer experience, live in London or Home Counties, then take a big stride to an exciting new career with excellent future prospects by calling today. — but hurry!

Consultant's Ref: EK2137

AB EXECUTIVE (KINGSTON) LTD. 01-546 9473

### CONTRACTS

Programmer, Analyst, Operator, Systems Engineer, Systems Manager, Systems Architect, Systems Designer, Systems Developer, Systems Tester, Systems Support, Systems Training, Systems Maintenance, Systems Upgrade, Systems Migration, Systems Integration, Systems Interfacing, Systems Conversion, Systems Decommissioning, Systems Disposal, Systems Recycling, Systems Reuse, Systems Replication, Systems Backup, Systems Recovery, Systems Archiving, Systems Restoration, Systems Archiving, Systems Restoration, Systems Archiving, Systems Restoration.

### CAPITAL APPTS.

**FORTRAN**  
Programmer, Analyst, Operator, Systems Engineer, Systems Manager, Systems Architect, Systems Designer, Systems Developer, Systems Tester, Systems Support, Systems Training, Systems Maintenance, Systems Upgrade, Systems Migration, Systems Integration, Systems Interfacing, Systems Conversion, Systems Decommissioning, Systems Disposal, Systems Recycling, Systems Reuse, Systems Replication, Systems Backup, Systems Recovery, Systems Archiving, Systems Restoration, Systems Archiving, Systems Restoration, Systems Archiving, Systems Restoration.

## Programmer/Analyst

£5,000 +

Applications are invited from both men and women having three years experience of programming in COBOL. Experience of PLAN would also be useful as would experience in Systems Analysis work although appropriate training will be given in this field.

The vacancy exists in the Systems and Data Processing Department based at our Head Office in Gloucester where current systems are run on an ICL 1903T 128K VDU's based on ICL 7502's and a variety of Nixdorf mini-computers. By the end of 1979 this hardware will have been replaced by a ICL 2960 under DME with EDS 100's.

The post carries a commencing salary in excess of £5,000 per annum, and applicants, who should be self-motivated and willing to tackle tasks without day to day control, will have ample opportunity to develop from this level in a challenging environment.

The company is a member of the Unilever Group, and conditions of employment, therefore, are consistent with those of a large, progressive organisation. Please write (or telephone Gloucester 2152) Extension 2174) in the first instance for application form quoting reference no. 79/01 to:

Personnel Manager (Administration), T. Wall & Sons (Ice Cream) Limited, Wall's House, Gloucester, GL4 7HB.

All applications will be acknowledged.



## SHORT TERM CONTRACT OPPORTUNITIES!

**SYSTEMS ANALYSTS/  
PROGRAMMERS/OPERATORS  
VARIOUS MACHINES AND LANGUAGES  
AREA — SCOTLAND**

Availability — Full or Part Time

Apply, with details of experience, to:  
**H. G. USHER & CO. LTD.**  
3 WALKER STREET, EDINBURGH EH8 7JY  
TEL: 01-226 8947/8633

## IMPERIAL CANCER RESEARCH FUND

## COMPUTER PROGRAMMER

Required to assist a team of scientists undertaking research in medical genetics.

Initial responsibility will be the development of programs for the analysis of biomedical, clinical and experimental data. At least two years' experience of Fortran programming is essential and the handling of large scale data files would be an advantage.

Salary range £3936 to £5266.

For further information and application form telephone or write to Miss S. M. Hurley, Imperial Cancer Research Fund, Lincoln's Inn Fields, London, WC2, on 01-242 0200 ext. 305.

## FIELD SERVICE ENGINEERS

**SHEPHERD GRAPHICS**, a growing company with a big future in the Graphic Arts Industry, require Field Service Engineers to install and service computerised typesetting systems throughout the UK. A Company car is provided and there will be opportunity for high level overseas travel. Applicants should have experience of computer controlled systems, floppy or rigid disks, visual display terminals and at home with basic machine language and software diagnostic facilities. The position will be based from our office in SLOUGH.

Apply in writing or phone SLOUGH 38779/0

Bob Allen — Service Manager  
**Shepherd Graphics Limited**  
283 Farnham Road, SLOUGH,  
Berks SL2 1HA

**COMPUTER PERSONNEL APPOINTMENTS LTD.**  
Career Specialists and Consultants for:  
**D.P. MANAGERS, SYSTEMS ANALYSTS,  
PROGRAMMERS AND  
OPERATORS**

Midlands, Northern Counties and Southern  
For application form apply to:  
65 New Street, Birmingham B2 4NU, 01-242 0200  
or Tel. 01-328 7351



## SALES EXECUTIVES

(TURN-KEY MINI COMPUTER SYSTEMS)

**SALES TERRITORIES**  
MIDLANDS & SURROUNDING  
COUNTIES

**ON QUOTA EARNINGS**  
£13,000 P.A. +  
PLUS COMPANY CAR

Our Clients based in the West Midlands, are a fast growing and well respected supplier of turn-key mini computer systems with a substantial and impressive Client base.

The Company market excellent products in hardware and application package terms, coupled with good technical support resources.

Candidates should have a proven sales record within the mini computer sales field, a sound business understanding and the motivation and determination to succeed.

In return the Company offers a stimulating working environment amongst professionals, realistic and achievable quotas and genuine long term career prospects.

For further details and an immediate confidential interview contact.

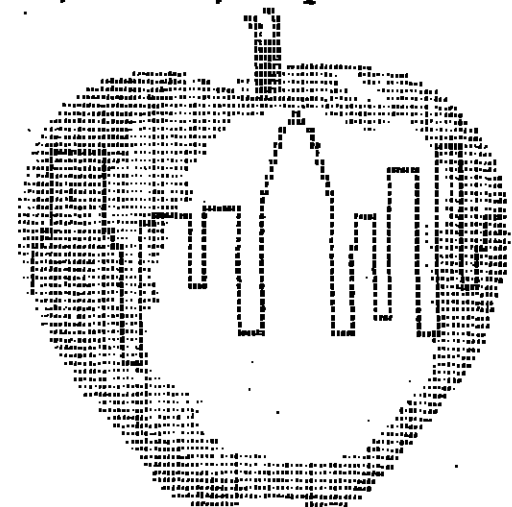
RICHARD CHAMPION ON: 021-238 3781 (24 HOUR ANSWERING SERVICE)  
OR HAGLEY 4166 (EVENINGS & WEEKENDS)

### SPECIALIST COMPUTER RECRUITMENT LIMITED

**BIRMINGHAM** 021-236 3781  
Freeport, Equity and Law House,  
35-37 Great Charles Street Queensway, Birmingham B3 2BR  
**MANCHESTER** 061-833 0427  
Freeport, Blackfriars House, The Parsonage, Manchester M3 8BB  
**LONDON** 01-933 0671  
Freeport 12, 3 Mandeville Place,  
Wigmore Street, London W1M 6LS

Computing  
Services  
Association

**NEW YORK**  
£8,000-£13,000 per annum



New York. The Big Apple. Ripe with opportunities for people in the computer industry. Right now, offering unrivalled experience in the most sophisticated business and financial environment in the world.

Our client, Computer Technicians Incorporated - Systems Division, a U.S. based consulting firm, is looking for Programmers and Systems Personnel to join a major U.S. bank, located in the Wall Street area of New York City.

Candidates for these permanent positions must have a knowledge of IBM and/or NCR systems. Vacancies exist for:

**PROGRAMMERS**  
with a minimum of 3 years' experience.  
**PROGRAMMER ANALYSTS**  
with a minimum of 3 years' experience.  
**SYSTEMS ANALYSTS/PROGRAMMERS**  
**SENIOR SYSTEMS ANALYSTS**

If you're tempted, simply telephone 01-937 6241 to arrange an interview, or apply in writing, with a full curriculum vitae to:



P.O. Box 834, Writtle Lane,  
Kensington, London W8 5SH

### SYSTEMS ANALYSTS PROGRAMMERS

Due to the continuing expansion within the Systems Department, we have a number of vacancies for Systems Analysts/Programmers for the systems and programming area, and the software and application support sections. The department currently operates:

ICL 1906A under G3  
ICL 2880 under VME/8  
(Using mainly COBOL for  
commercial applications)

Candidates for the above positions should preferably be fully experienced, but we may be willing to train in some instances. Provided academic qualification is to HND/Degree standard.

These are responsible positions offering attractive salaries based on experience. In addition the Corporation offers a Pension and Life Assurance Scheme, Sports and Social facilities and excellent canteen facilities.

Please write or telephone for an application form to:

Employment Officer  
**BRITISH AEROSPACE AIRCRAFT GROUP**  
Greengate, Middleton  
MANCHESTER M24 1SA  
Telephone: 061-881 2020 extension 387

### The Polytechnic of North London

#### HEAD OF COMPUTER UNIT

Applications are invited for the above post which involves responsibility for all functions of the Computer Unit including operation, systems programming, data preparation and advisory services throughout the Polytechnic.

The Computer Unit has a DECsystem-10 computer with a large range of peripherals providing a multi-access and batch processing service and has a staff of about 30.

Applicants should be graduates with considerable experience in the hardware and software fields, some of which should be at management level.

Salary Scale: £7827-£8856 (including London Allowance).

Application form and further details from Educational Officer,  
Polytechnic of North London, Holloway Road, London N7 8DB.

Closing date: 15th February, 1979.

## Lowndes-Ajax expansion creates rewarding sales opportunities

### CROYDON

#### Mailing & Fulfilment System

This position has been created to capitalize on the company's experience in the above field, by selling a sophisticated mailing system entailing a degree of individual tailoring to large user requirements, in order to gain a major share of this market.

The successful applicant may currently be working as a project leader/systems analyst although sales experience would be an asset. Each system could be based on DBMS and RJE so knowledge of these techniques will be useful.

#### Computer Output Microfilm

The purpose of this post is to maintain and further increase the current rate of market penetration. An experienced sales executive with a sound knowledge of COM and Microfilm techniques, together with an on-going interest in this expanding sector of the computer market, is required to sell the service to a wide variety of users.

The successful applicant will be joining an established COM Bureau, already servicing a large number of satisfied customers. He will be backed by an experienced and dedicated support team using advanced equipment.

#### Personnel Information Systems

The company, already considerably experienced in DBMS related systems and all types of telecommunications, is developing a new specialist service aimed at providing an interactive system designed around the System 2000 DBMS operating on large IBM 370's.

This development requires a sales executive with experience of DBMS and/or personnel-related systems, preferably in a sales capacity or as a project leader, to assist the Company's advance into Custom-built database applications such as, the Personnel Information systems market.

**Applications**  
Payroll and Personnel  
Ledgers and Fixed Assets  
Custom-built Systems  
Mailing  
Manufacturing Systems  
Financial and Insurance Systems

### WARRINGTON

#### Financial Accounting Systems

A knowledge of Payroll and Ledgers with ability to negotiate at a senior level, is required for this post. A background in E.D.P., preferably with IBM mainframes is desirable. An interest in Database and remote computing would be an advantage. The successful applicant will be required to use initiative and to work without close supervision.

#### Remuneration

All these positions carry a basic salary of over £6,000 and commission package producing earnings of £8,500 based on very realistic quotas. Rewards considerably in excess of £10,000 are currently being earned as a result of above quota performances.

#### Job Structure

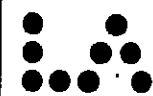
Successful applicants will join a sales team structured on an hierarchical basis offering excellent opportunities for advancement to leadership status.

#### Fringe Benefits

Each post includes a company car plus other exceptional benefits such as mortgage subsidy, B.U.P.A., pension scheme and membership of an excellent sports and social club.

Applicants for these posts should in the first instance write with full C.V., or telephone Mrs. Liz. Hilton, Lowndes-Ajax Computer Service Limited, Milton House, Milton Road, Croydon, CR9 2XG. Tel: 01-689 2244.

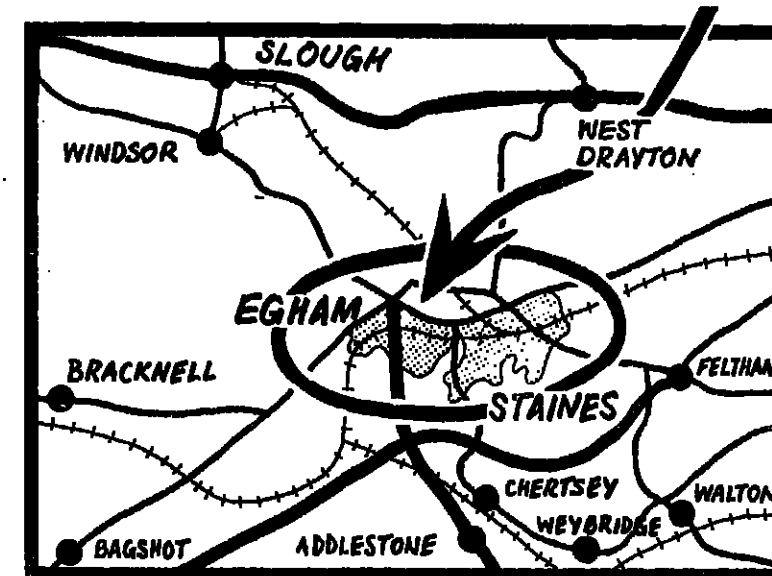
#### Lowndes-Ajax Computer Service



A Member of the Hut Software Group - Former Member of BSA

**Facilities**  
G.O.M.  
Data Preparation  
Remote Batch Computing  
Interactive Computing  
System 2000 DBMS  
Simplex Corporate Modelling

## LIKE TO WORK HERE?



If Staines/Egham is an easy place for you to get to, you could well be interested in one of the current openings with our clients - a busy, lively Company engaged in the manufacture and assembly of electronic components. With the support of a new top management team, a number of accounting and manufacturing systems are being developed, using ICL 2904 and on-line facilities in the administrative offices. The installation is conveniently situated close to shops, banks, etc., and relocation assistance will be given where applicable. Our clients are committed to the development of skills by a planned schedule of training.

#### SENIOR ANALYSTS £6500-£8000

These posts will interest practical, well-organised people who are happy working in a manufacturing environment. There are opportunities to take project responsibility, including team leadership, in the fields of finance and production. (Ref. 972)

#### O&M ANALYST C. £6500

This is a new appointment, and the successful candidate (who will be the first O&M practitioner in the Company) will have plenty of scope to design and implement improved methods. A sound O&M background is required, with some supervisory experience, since there is the potential to build a small team in the near future. (Ref. 978)

#### PROGRAMMER C. £5500

This opening will interest a practical, effective programmer, with COROL and/or RPG II experience (preferably ICL). A member of a small team in addition to being involved in new applications (including on-line systems) you will have the opportunity to further your technical experience. (Ref. 977)

Please ring us for a confidential talk, quoting the appropriate reference, or leave a message on our answering machine after hours and we'll contact you. Initial interviews will be held either at our offices or in your home area.

**EDP SYSTEMS** 01.637 5796  
52-53 Margaret St. London W1N 7FF

### IBM Programming Experience?

## Programmer/ Analyst

ICI's Pharmaceuticals Division is looking for a young man or woman with at least 2 years' programming experience using IBM 360/370.

Comprising analysts, programmers and a data control function, the section is responsible for systems analysis, design and programming and production of divisional management accounting information. As a programmer/analyst you would be responsible both for development work and the operation and maintenance of current systems, with good scope for career development. Aged around 22/32 with a university degree or equivalent, you will need a good knowledge of PL/I. Experience with on-line systems would be an advantage.

The Division is situated in a delightful and easily accessible part of the Cheshire countryside. A remuneration package of around £6,000 would be offered to the successful candidate and other benefits, including relocation expenses, sports and social clubs are excellent.

For information and an application form, ring Kate Hudson on Alderley Edge 582828 or write to her at:



Personnel Department,  
ICI Ltd,  
Pharmaceuticals Division,  
Alderley House,  
Alderley Park,  
Macclesfield, Cheshire

Recruitment



in Informatics

## Burroughs Programmers & Analysts Belgium and Netherlands

Salaries: £12K-£15K

An Important Financial and Banking Institution based in the Benelux and having one installation in the Netherlands and its Head-Quarters in Belgium requires PROGRAMMERS and ANALYSTS to join its Development Teams in Spring, 1979. Both installations run BURROUGHS mainframe hardware and consequently it is a pre-requisite to offer current expertise on that company's medium and large scale equipment either in a Programming or Analytical/Designing capacity. These opportunities represent an outstanding opportunity

for those who have had exposure to Financial, Commercial and Banking applications. You will be offered a permanent career position at one of the two installations and be expected to integrate into both the work and social fabric of the local community. To assist you, generous relocation and accommodation allowances will be paid, language tuition courses are available to all employees. Whilst we will conduct initial interviews, you will be required to spend one full day at the company's Head-Quarters - of course at its expense for further interview and selection.

## Coral 66 Programmers Hertfordshire or Central London

Salary: £6K-£8.5K

One of the U.K.'s foremost Hardware Design and Software Supply Companies urgently requires additional team members for one of its prestige projects. Whilst previous hardware experience is not essential it is essential that applicants are fully conversant with CORAL 66 and preferably either Mini/Micro Assembler or maintaining FORTRAN. Those who have experience in the development of systems and software, compilers and operating systems are of special importance, whilst for other

positions an in-depth knowledge of emulators, IBM HASP/280 or ICL 7020 would be considered as advantageous. The scope of the projects is both broad and demanding and certainly well in keeping with the prestige of this client. You will play an important role in project development and will be given every opportunity to enhance your technical expertise. Fringe benefits are well above average covering health and medical benefits, restaurant facilities and if appropriate relocation expenses.

## Snr/Jnr Mini/Micro Specialists Denmark

Salaries: £9K-£15K

Our client is a major International Systems and Software Development Group recognised as Market Leaders in its field. Owing to continued expansion in a wide variety of applications areas including Data Communications, Message Switching, Computer Networking and Mini Computer Software, a significant number of experienced permanent personnel are urgently required. Emphasis will be placed on technical achievement and in-depth experience in the areas of software outlined above. Whilst a degree or equivalent qualification in either Computing, Science or Mathematics is desirable, significant relevant experience will be considered in lieu.

Of essence is a solid Assembler background within a Mini computer or Microprocessor environment. Project locations are primarily in Copenhagen and suburbs although candidates can expect to work (should they so desire) in the Netherlands, Germany or Sweden. Of prime importance is demonstrable enthusiasm to relocate to the Netherlands for an extended period. Every assistance will be given in relocation, including the cost of removal of all personal effects, initial accommodation expenses and a resettlement advance. Interviews will be held as soon as applications are received and offers of employment will be made within 10 days of interview.

## Database and TP Specialists Belgium and Thames Valley

Salaries: Europe c £16K UK c £10K

One of the World's foremost Software Suppliers of U.S. origin has requested Logistix to identify top calibre T.P. and/or Database Analysts, Designers and Software/Applications Programmers up to and beyond Team Leader level for permanent career based positions to the West and North of London or immediately at the company's European Head-Quarters in Belgium. Suitable applicants must have current on-line (T.P.) or Database applications or systems programming experience using PL/I, COBOL or BAL. It is anticipated that candidates will have worked with on-line or D.B. applications for 2 years or longer. Applications cover on-line enquiry systems, sales

ordering, stock/inventory control, budgeting and forecasting etc. The scope of projects and the prestige of working with this acclaimed Market Leader will be certain to appeal to the most demanding career minded individuals. The high salaries reflect the prominence which our client places in the acquisition of these key personnel who are certain to rise rapidly to Consultancy or Management levels. Interviews will be held either in our London offices or alternatively at the client's Regional Head-Quarters in U.K. whilst for expatriates arrangements for an interview in Belgium can be made.

## Systems Development (Pre and Post Sales) Central London and Thames Valley

Salary to £10K + car

Two divisions of a prestige Systems and Software Development Group are seeking additional personnel at all levels of experience. Generally speaking, applicants should have experience in one or more of the following application areas: COMMERCIAL - equipment selection and implementation, organisational reviews and systems development plans. TECHNICAL - compiler design, operating systems and communications software, in both divisions you

will be given opportunities to act in a pre or post sales environment. The company offers an outstanding portfolio of company benefits including a minimum of 4 weeks holiday allowance, Group medical insurance and life assurance are already in operation whilst more senior staff are eligible for an annual bonus (currently assessed at 10% of salary). Full removal assistance is available where appropriate. Local interviews in Greater Manchester, Central London and Reading will be arranged to suit requirements.

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## DATA COMMUNICATIONS SALES

South of England

With the increasing trend toward distributed processing and satellite computing facilities, data communications is now one of the foremost growth areas within the data processing industry. As the market leader in data communications equipment our client offers an unrivalled range of products which have a well-established reputation for technical sophistication coupled with the flexibility to provide users with a "total-solution" to communications requirements. To cope with the ever increasing demand for their products, the company is currently expanding its sales team and is able to offer a number of exceptional opportunities for both Field Sales and Internal Sales personnel.

### FIELD SALES

The ideal candidate will have previous experience of selling data communications equipment. However, a sales background in any relevant field will certainly prove useful since extensive product training will be provided as will technical support in the field. A good basic salary is offered plus a generous commission scheme, bonus, and company car. Commission will be guaranteed for an initial period and the first year quota earnings are circa £8000, which one may confidently expect to exceed.

The company headquarters are based in Berkshire and currently vacancies exist in territories throughout the South of England. In a major organisation, where sales have developed rapidly in recent years, the persons appointed can look forward to a dynamic and challenging future where career opportunities are unlimited.

### INTERNAL SALES

These positions provide an excellent training ground for young persons with suitable technical backgrounds who have the business acumen to move into a sales role. Acting on their own initiative the persons appointed will be responsible for providing support to field salesmen, producing proposals, and liaising with clients to develop and maintain existing accounts. A basic salary plus bonus is offered circa £4500, and successful candidates may look forward to a move into field sales after approximately eighteen months.

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### OPERATOR and SENIOR OPERATOR

— Central London Mini-Computers

Salary ranges  
Senior Operator £3,600-£3,800  
Operator £3,250-£3,450

London Transport has vacancies for an Operator and a Senior Operator for its 2904 Mini-Computers.

These machines are:  
\* Involved in a variety of applications including File Enquiry, DDE, Batch Processing and RJE to mainframe computers.  
\* Located in the St. James's Park and Paddington areas.  
\* Normally operated in three 8 hour shifts covering the period 0715-2000.  
Applicants should have some experience of computer operating, and for the senior position at least 18 months' experience is needed, part of which will ideally have been in a supervisory capacity.  
There are several attractive fringe benefits, including FREE TRAVEL AT ALL TIMES ON LONDON TRANSPORT SERVICES.

Write for an application form, quoting ref. 884/C to Staff Appointments and Development Officer, London Transport, 55 Broadway, London SW1H 0BD, or phone 01-222 8800 ext. 633.



### PROGRAMMING WITHIN EUROPE

We are DP Management Consultants advising large manufacturing and retail concerns in Holland. Our clients have asked us to establish a team of DP professionals in Holland. For this purpose we require:  
ICL 1800-2850 Systems Programmer with relevant experience (not just experienced) in Group 2+ VME/ICL data communications and data base.  
IBM 360-370 Systems Programmer of above calibre but in relation to DOS and OS/VS systems SNA and 3700 terminals concept.  
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These positions are offered on a contract or permanent basis with us, subject to mutual agreement. In return for a competitive and dedicated work we offer promotion/salary prospects compatible with a newly founded partnership.

Please write or telephone regarding charges.  
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## BLACKWOOD ASSOCIATES

### PROGRAMMER R.P.G.11

### BIRMINGHAM

### To £5,000+

This major IBM Systems 3 installation requires a competent RPG 11 Programmer. Experience of TP systems would be an advantage but is not essential.

An exciting range of projects involves On-Line and Batch systems for a number of users within the Group throughout the U.K.

An excellent salary and fringe benefits are offered to candidates having appropriate experience.  
Job Ref. 4/173



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All classified copy should reach our offices no later than 5.30 p.m. on the Monday preceding Thursday's publication. If complete artwork is supplied 12 noon on a Tuesday.

Ring David Abbey for further details on 01-261 8016.

### Anglian Water Authority

### ASSISTANT NETWORK CONTROLLER

### £5,133-£5,493 (NJC Grade 6)

### Inclusive of supplements

A vacancy exists for an Assistant Network Controller to work under the Network Controller in implementing and maintaining control of all aspects of an expanding communications network. The project site is currently over 100 VDUs connected via Internat 20/30 Controllers with internal modems operating at 4800 bps over Post Office private lines, to dual Datamat 355 front ending dual Honeywell 66/10 systems.

Applicants should have at least 1 year's experience on Network Control and 3 years in Computer Operations. Experience of Post Office telecommunications and Honeywell Datamat equipment is desirable but not essential.

The post is located in Huntingdon and has excellent conditions of service with generous relocation expenses where applicable.

Please contact Jenny Spencer on Huntingdon (0480) 55181 Ext. 370 for further information and an application form which should be returned by 9th February, 1979, or write to:

ANGLIAN WATER AUTHORITY  
Diploma House, Grantham School Walk  
Huntingdon, Cambs.

### METROPOLITAN BOROUGH OF TRAFFORD

### BOROUGH TREASURER'S DEPARTMENT

### DATABASE SYSTEMS ANALYST/PROGRAMMER

SO1/2 (M920-25745 plus £312 supplement)

The Council operates an IBM 370/138 under DOS/VS and VM/CMS. A database is now being developed using RAMIS II and this will cover a wide range of Council's applications.  
The successful candidate will be required to work with the Database Administrator on the introduction of RAMIS II techniques and the setting up of the comprehensive database. He will also be expected to work as a member of the team on a wide range of tasks to enable the Systems Programmer to design, develop and maintain the integrity of the database system. A keen interest in database systems and a willingness to undertake an expanding environment of personal computing and should enjoy job satisfaction.  
Applicants are invited for the above post from computer science and related fields with wide experience. Knowledge of COBOL is necessary and experience of RAMIS II would be an advantage; no knowledge of RAMIS II is required.  
Application forms and further information from Miss S. Dargatzis, P.O. Box 10, Watwick House, 55/57 Watwick Road, Sale, Manchester M33 9JH, or by 9th February.

### CONTROL DATA

### EDUCATION SERVICES DIVISION

## SENIOR SALES EXECUTIVE

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High intelligence is a fundamental prerequisite and a degree in a scientific or social subject or in education would be a significant advantage. The wide range of opportunities presented by this unique position can only be fully explored by a person with a creative and flexible mind, a thoroughly results orientated approach to business, the personal stature to negotiate at the highest level and clear potential for rapid advancement into management.

The job will be based in CENTRAL LONDON and annual on-target earnings will be in excess of —

**£10,000 — COMPANY CAR**  
— and a variety of other benefits

SMR Sales and Marketing Recruiters Ltd.,  
Victory House, 99 Regent Street, London W1R 7HB. Telephone: 01-734 9776.



MORE THAN A COMPUTER COMPANY

### SALES ENGINEER

### COMPUTER SERVICES

Applicants are invited to fill this new position created as a result of our further expansion. We are looking for someone who has already gained experience in selling in the Computer Services Sector and wishes to join a successful international group whose activities are totally related to selling third party computer hardware maintenance to manufacturers O.E.M.'s and End Users.

The successful applicant will join a small but dedicated team operating from our Head Office in Feltham, Middlesex and must be willing to travel throughout the U.K., and occasionally overseas.

An attractive salary will be negotiated and a contributory Pension Fund is in operation. A Company car will be supplied for your full time use.

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Systems Maintenance and Services Limited,  
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## THE SALES AND MARKETING BIT

### Demonstrations that fail to meet simple objectives

DEMONSTRATIONS are seldom a roaring success. They usually fall into two categories: satisfactory or disastrous.

A satisfactory demonstration is one where the salesman is able to prove to the client that all the claims he has made about the equipment are valid. As with the sales proposal, there are no surprises, merely confirmation of product features already discussed. It is a situation which enables the potential buyer to move from the unknown to the known in product terms.

Unfortunately, most demonstrations fail to meet these simple objectives, and all for the same reason — lack of forethought and planning.

By far the most important aspect of a demonstration is deciding upon those features which are relevant to the client's needs and concentrating upon them. A demonstration which merely exposes every aspect of a machine's performance is not an effective selling exercise. Irrelevant features serve only to confuse. What is the point in displaying even the most impressive features of the equipment if the potential user has no need of it?

It is therefore essential that the salesman decides which facilities are of interest to the client, well before the event, and concentrates upon those.

The organisation of a demonstration needs as much planning and consideration as a second D-Day.

First, the overall administration. Where will the demo be held — existing client, own office? When is the machine available? Can the client make it on that day? Who will be attending on the prospect's behalf? Who will be needed on the salesman's side? Will refreshments be required — coffee, lunch? Does the client need to be met or collected? What relevant literature will be required — equipment, software, proposals?

Then the product itself. It must be the one on which the prospect is about to make a buying decision, which in turn is the one he is expecting to see, not a bigger one, or a smaller one, or one with different features. This must be established well in advance. The demonstration should be practised not only well before the event but also immediately prior to the live run, in order to cater for any last minute equipment failures.

If the salesman needs to call on assistance from technical staff, they should be involved right from the outset.

The demonstration itself should be structured, slipping from one relevant feature to another with a natural pause at each stage to agree the related benefit. The salesman must be in control of the demonstration throughout, whether he is a technician

is actually "pushing the buttons." This is best achieved by a philosophy of "Tell 'em what you're going to show 'em, show 'em, then tell 'em you've shown 'em." However, this control should not be an any way rigid or autocratic. If the demonstration takes place within a present user environment, it is essential that the prospective and existing customer have the opportunity of talking alone. After all, a satisfied user is a company's best salesman.

Under no circumstances should the salesman abuse the product either physically or emotionally. A lack in the modern or casting doubts on the intellectual capability of the engineer only serves to degrade the product and the chances of sales success. The salesman's respect for the product must be made apparent. He doesn't need to be too correct at times, but his attitude must demonstrate that as far as he is concerned it is the best kit in the whole world.

One final thing the salesman must never forget to say "Thank You, both verbally and subsequently in writing to all the parties involved in the prospect's attendance, the existing client for the use of his equipment and hospitality, and his colleagues for their assistance.

There is always a next time!

TRADER

### Multi-drop version

BORER has announced a multi-drop version of its 48LSI modem, the 48LSI-M, priced at £1,945. It can be used with a maximum of 32 modems on one line and has a response time of 25 ms, as against 2 secs for the 48LSI.

Based on an LSI chip from Hicom in California, it uses the common standard 1,800 Hz carrier frequency as the 48LSI, which Borer says takes better advantage of the maximum bandwidth of the UK telephone lines than the CCITT recommended 1,200 Hz. It also uses both phase modulation and amplitude modulation together, a technique Borer calls "double-dimino". The modem operates at 4,800 bps, half duplex over a two wire circuit, and a new programmable mode control provides for automatic dial hook-up.

### Puzzle Answer

ADDING the ten readings together, and then dividing by four, gives a combined voltage total of 240. Now, since all voltages are known to be different, the two smallest (A and B) must add up to 87, and the two largest (Q and E) to 104. Therefore the other voltage, which can be called C, must equal 240 - 87 - 104 or 49. This leads quickly to A = 42, B = 45, D = 50 and E = 54.



